Construction Methods

A McGRAW-HILL PUBLICATION

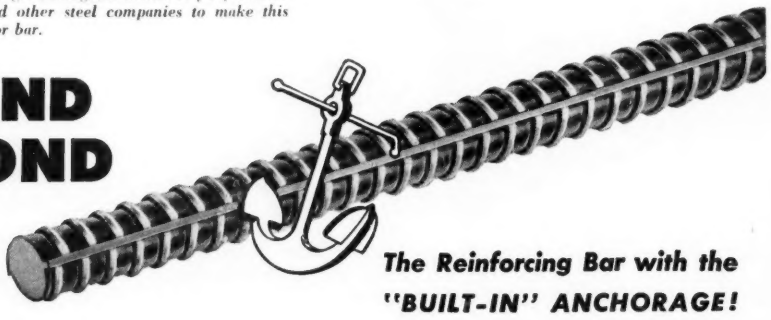
Have OBSOLETE Building Codes Got You ON THE HOOK?

Current building codes require you to use hooks on reinforcing bars *where hooks are not needed.* These codes—now obsolete—were written *before* Inland developed Hi-Bond, whose deep, reversed, double-helical ribs give greater mechanical grip, higher bonding strength . . . *before* National Bureau of Standards tests proved that Hi-Bond actually provides stronger anchorage *without* end hooks than ordinary deformed bars provide *with* hooks.

Because Hi-Bond anchors firmly, it makes possible greater use of the steel's potential strength. With Hi-Bond it is possible to build more economical and more efficient structures, using less steel and less concrete. Revisions in building codes will undoubtedly follow. Write for full information, today. INLAND STEEL CO., 38 S. Dearborn St., Chicago, Ill. Sales Offices: Chicago, Davenport, Detroit, Indianapolis, Kansas City, Milwaukee, New York, St. Louis, St. Paul.

The present demand for Hi-Bond greatly exceeds our ability to supply it. However, to make larger tonnages available to you, we have licensed other steel companies to make this superior bar.

INLAND HI-BOND



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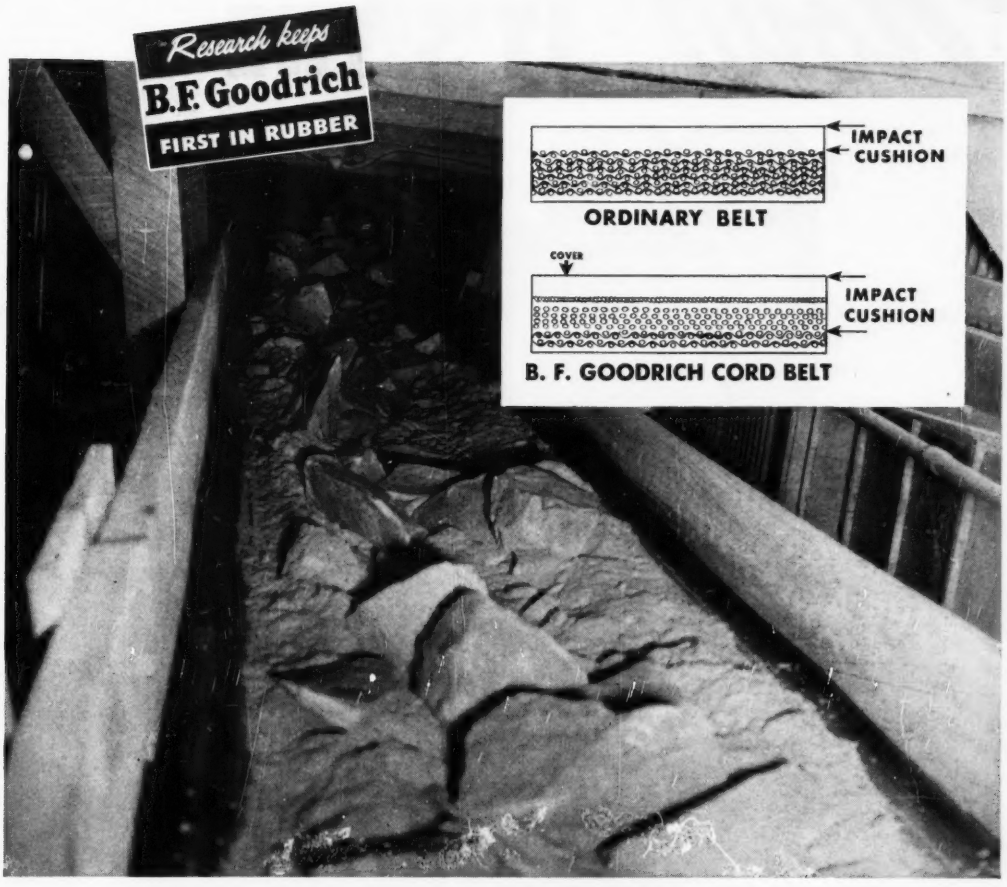
The Reinforcing Bar with the "BUILT-IN" ANCHORAGE!

OTHER PRODUCTS: BARS • STRUCTURALS • PLATES • SHEETS • STRIP • TIN PLATE • FLOOR PLATE • PILING • RAILS • TRACK ACCESSORIES



B. F. Goodrich cord conveyor belt

Gives 2 to 6 times greater impact resistance, troughs better, lasts longer

IN the cord plies of a B. F. Goodrich belt each cord is completely surrounded by rubber — no cross threads tie them together. These parallel cords are completely insulated from one another by rubber, free to "give" lengthwise and crosswise when an impact occurs. Thus the rubber can distort temporarily to distribute and absorb shocks that would damage a stiff, unyielding carcass. This augmented impact cushion means better belt service, longer belt life.

Cord belts trough better — Cord belts carry the load with less belt damage, less material "spill." Even thick, narrow cord belts trough naturally. And because they trough better, cord belts keep centered on the idlers, sustain less damage, require less maintenance. Longer centers, higher lifts can be used. Creasing action between idlers (as in a fabric-type belt) is eliminated.

Cord belts last longer, reduce costs — The better impact cushion of cord construction resists cuts and gouges. A transverse cord "breaker" floated above and across the main cord section helps cushion impact, keeps the cover from stretching beyond elastic limits, and provides better adhesion between cover and carcass. With each cord completely sealed in rubber, this BFG belt resists the effects of acid materials, moisture, mildew.

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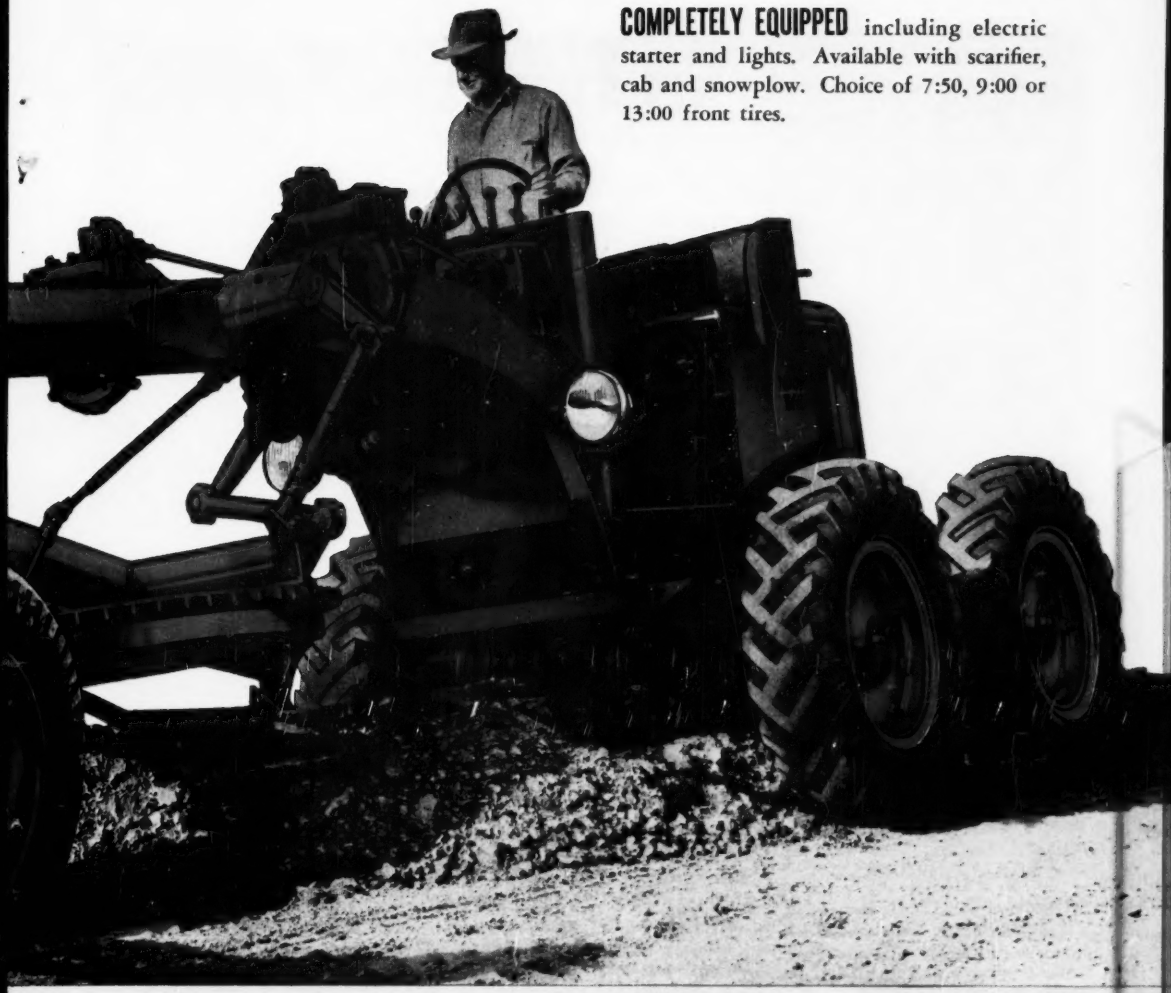
BD-2, 50.5 Brake hp. . . . 17,772 lbs.



COMPLETELY EQUIPPED including electric starter and lights. Available with scarifier, cab and snowplow. Choice of 7:50, 9:00 or 13:00 front tires.

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Construction Methods

THE CONSTRUCTION MAGAZINE WITH PICTURE POWER

Established 1919

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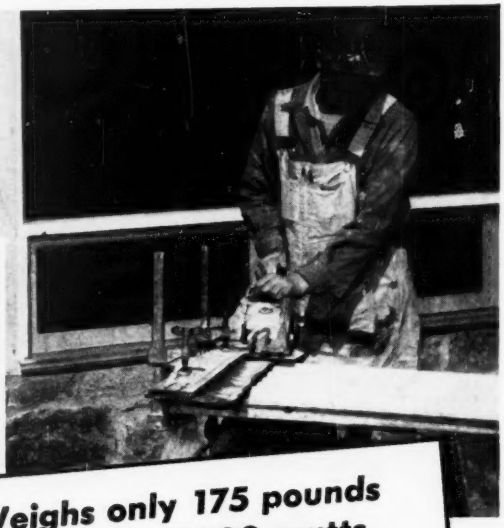

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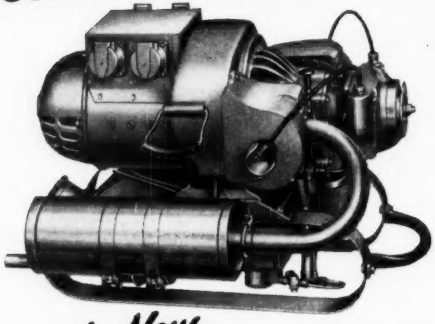

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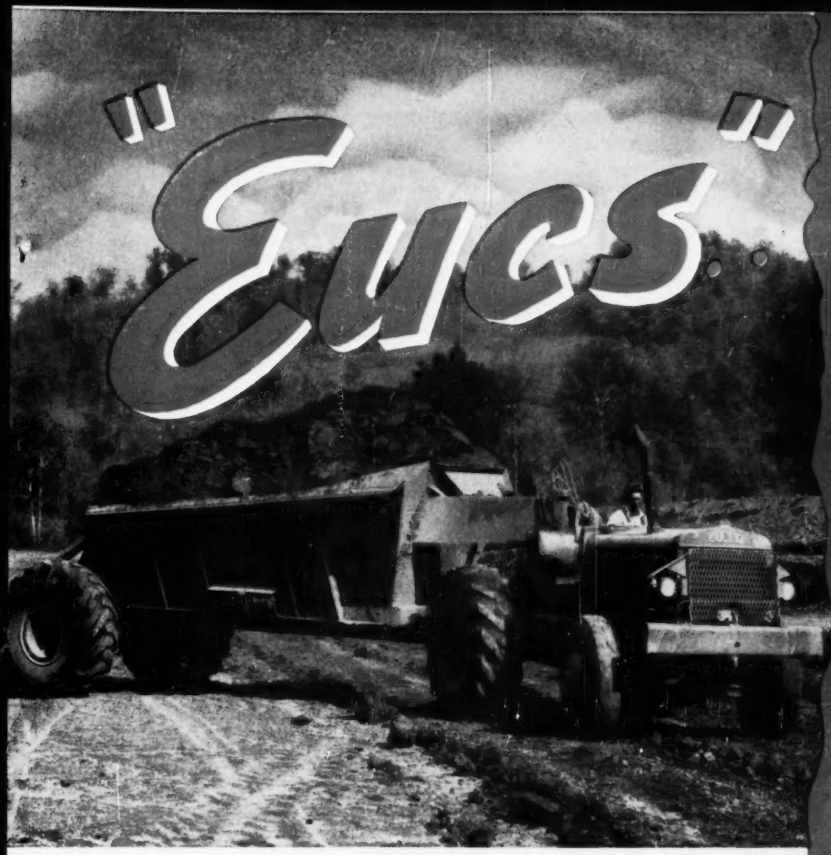

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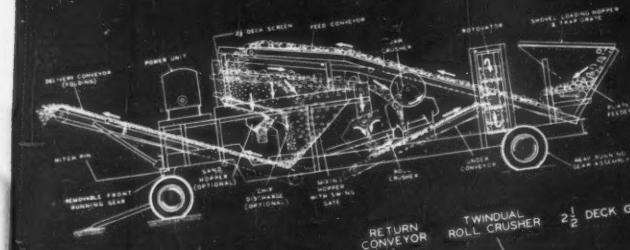
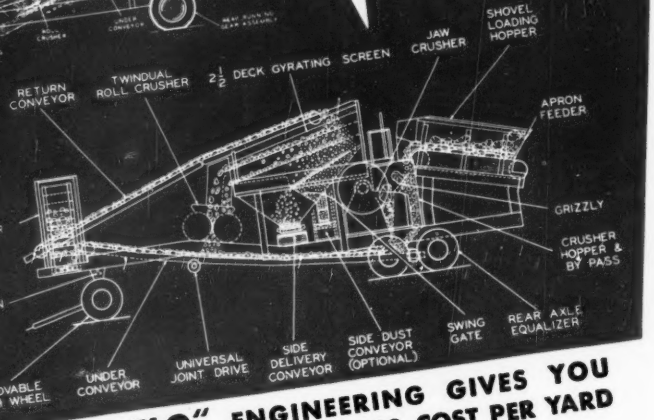


Built in 4 sizes with capacities from 35 to 200 yards of 1" per hour depending on actual amount of crushing.

The UNIVERSAL 293-Q PACEMAKER



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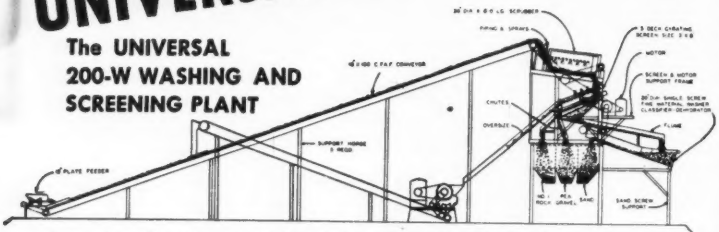

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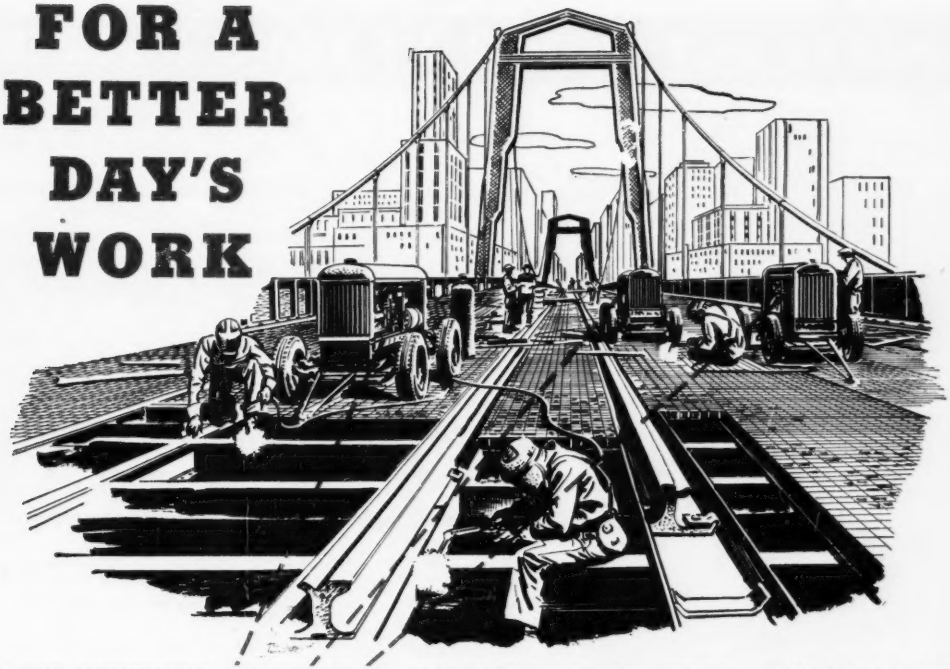
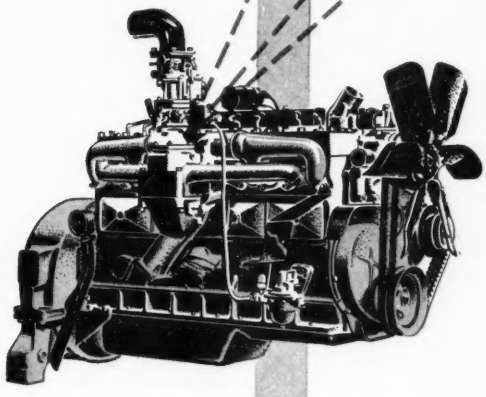


ON THE HIGHWAYS – IN INDUSTRY – ON FARMS – IN OIL FIELDS – AND IN FORESTS!



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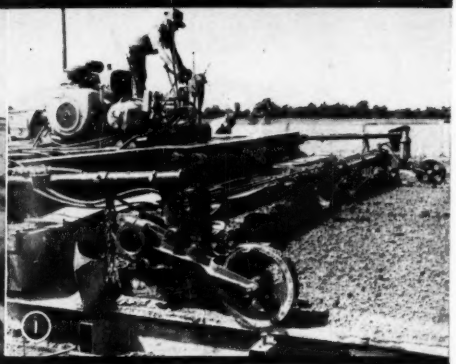

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2 ***SIDE FORM VIBRATOR:** Works equally well when mounted ahead of finisher screed or in the rear of spreader. Controlled by finisher operator — no other labor required. Vibrators will not penetrate through concrete to subgrade. May also be had as part of Paving Tube.

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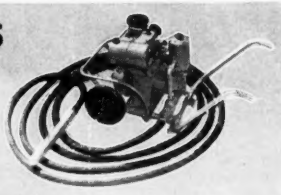

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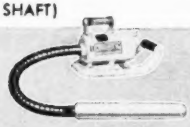

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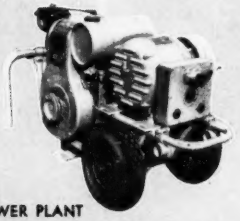

M-2
POWER PLANT

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Providence, R. I., buys his fifteenth NORTHWEST . . .

Everybody in the East knows M. A. Gammino and his long record of success in the construction industry. Here's an outfit that knows equipment — knows what it means to have the best for the heart of the job.

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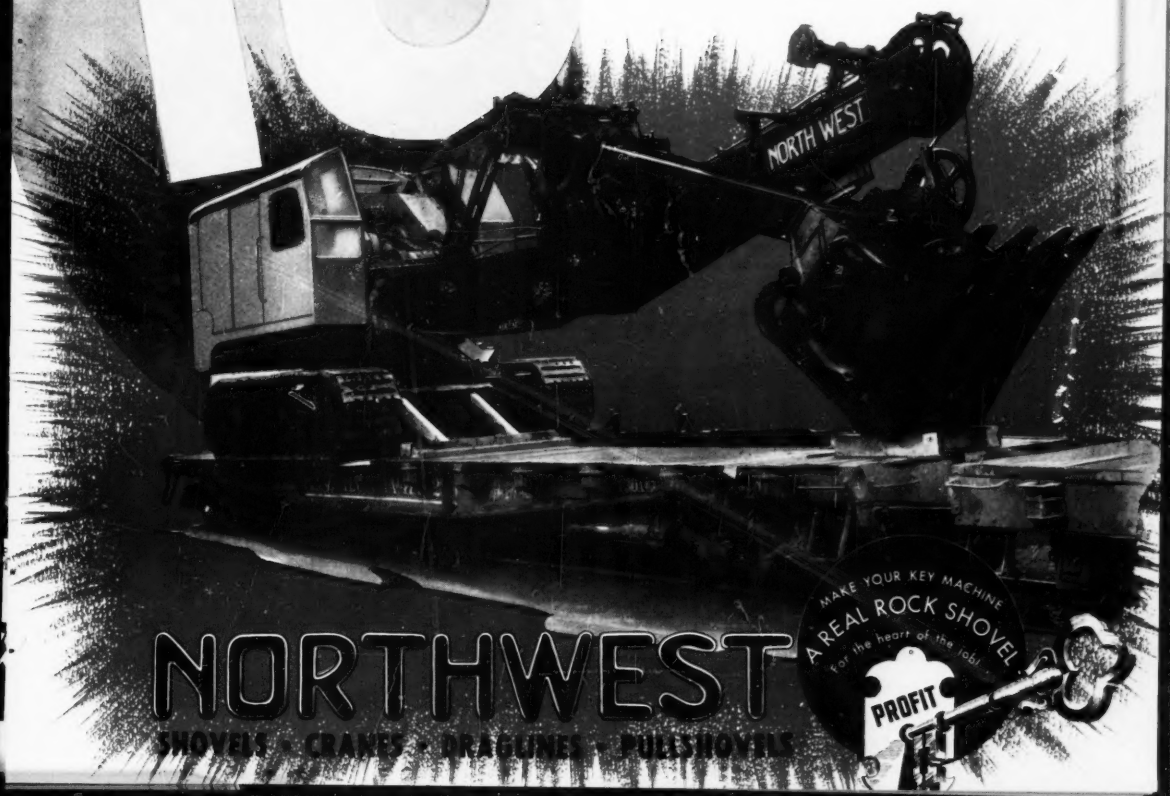
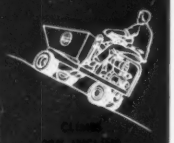


Hustle 5 wheelbarrowsful per load... at 10 m.p.h.

FROM THE MIXER CHUTE WITH THE

Whiteman POWER BUGGY



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- **Wheelbarrow tires . . . interchangeable wheels.**

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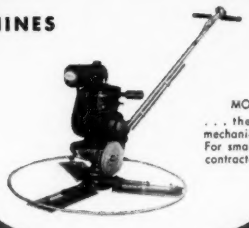

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WHITEMAN MFG. CO., 3249 Casitas Avenue, Los Angeles 26, California

Please send me literature and prices on the Whiteman Power Buggy and other Whiteman Concrete Equipment.

NAME_____

COMPANY_____

ADDRESS_____

CITY_____ ZONE_____ STATE_____

C-1

Wouldn't YOU look happy,

doing 4 days' drilling in 3?

On an excavation contract for 1,600,000 yards of approximately 60% limestone and sandstone rock, on U. S. Route 22 east of Pittsburgh, Ralph Myers Construction Co. replaced a good 500 ft. compressor with a "new standard" Jaeger 600 and immediately increased daily footage 35% to 40% with the same two wagon drills.

"I'm doing as much drilling in 3 days as I used to do in 4," says Ralph Myers, who now owns two Jaeger 600's.

Why? Because tools need more air today than they did back in 1932, when the old 60 to 500 ft. compressor ratings were established. 500 ft. of air maintains only 70 lbs. pressure behind two big wagon drills; with 600 ft. you step up pressure to a steady 90 lbs. at which drills will average as much as 40% more footage per hour.

You can get a comparable increase in production with any "new standard" Jaeger Air Plus. From the Model 75, that holds 90 lbs. pressure in a heavy pavement breaker, on up, every Air Plus rating is matched to the tools it is designed for. Ask any Jaeger user. Or go to your distributor who sells and rents "Air Plus" compressors and let him prove it on your job.

75 - 125 - 185 - 250 - 365 - 600 cfm at 100 lbs.

Why you can't match Jaeger ratings with any other compressor:

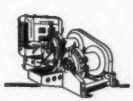
Jaegers, alone, have been designed with the much bigger valves, port areas, intercoolers, air receivers and clutches, the balanced 2-stage compression and advanced force feed lubrication needed to convert the greater horsepower of today's engines into more air power, at efficient, economical engine speeds. They had to be run at 20% to 30% slower piston speed than others (800 fpm) to hold them down to old ratings until modern engines became available in diesel to match gas.

NOTE: Because of "Fuel Miser" speed control, Jaegers use no more fuel than others when not delivering more air.

THE JAEGER MACHINE CO., Columbus 16, Ohio

PUMPS

MIXERS



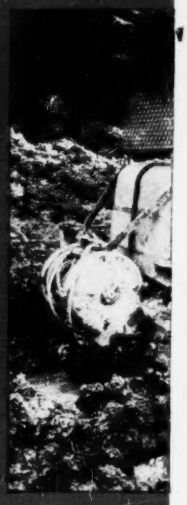
HOISTS

JAEGER

engineered equipment

COMPRESSORS • DIAGONAL SCREED FINISHERS
SCREW SPREADERS • BITUMINOUS PAVERS

Even on Jobs as tough as these

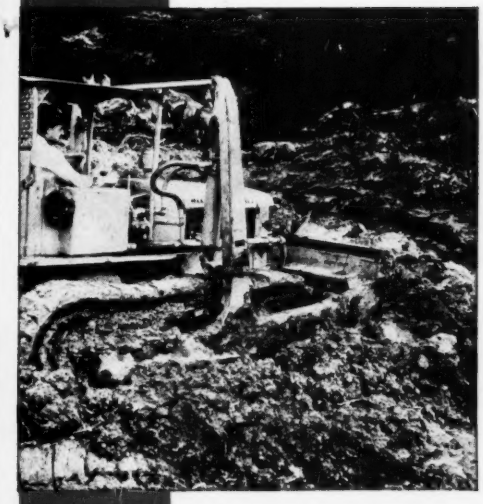


Texaco Marfak seals out dirt and moisture . . . reduces maintenance costs. That's why more than 300 million pounds of Marfak have been sold!

Tune in . . .
TEXACO STAR THEATRE
presents MILTON BERLE
every Wednesday night.
METROPOLITAN OPERA
broadcasts every
Saturday afternoon.

TEXACO

TEXACO



BULLDOZE wet, sticky mud . . . churn through desert dust and heat . . . no matter how extreme the conditions, chassis parts get greater protection and last longer when lubricated with *Texaco Marfak*. Maintenance costs are lower!

Texaco Marfak stays in the bearings. It won't work out in rough service or under heavy loads. Ordinary road splash won't wash it out. *Marfak* forms a tough "collar" at the edge of a bearing, sealing itself in and sealing out dirt and dampness. It keeps moisture off metal, protects against rust. And because it's long lasting, fewer applications are needed.

In wheel bearings, *Texaco Marfak Heavy Duty* assures similarly *long-lasting* protection and worthwhile reduction in maintenance costs. *Marfak Heavy Duty* also seals out dirt and moisture, seals itself in, and protects against rust. It won't leak onto brakes . . . requires no seasonal re-packing.

OTHER LUBRICANTS FOR FURTHER PROTECTION

Keep Diesel and heavy-duty gasoline engines clean by lubricating with *Texaco Ursa Oil X***. This is a fully detergent and dispersive oil, made to assure trouble-free operation, maximum efficiency, minimum fuel costs.

Protect track rolls from dirt and moisture with *Texaco Track Roll Lubricant*. It seals out contaminants, assures longer bearing life.

Let a Texaco Lubrication Engineer tell you about Texaco's Simplified Lubrication Plan to assure more efficient and economical performance from all your equipment. Just call the nearest of the more than 2300 Texaco Wholesale Distributing Plants in the 48 States, or write The Texas Company, 135 E. 42nd St., New York 17, N. Y.

Lubricants and Fuels

FOR ALL CONTRACTORS' EQUIPMENT

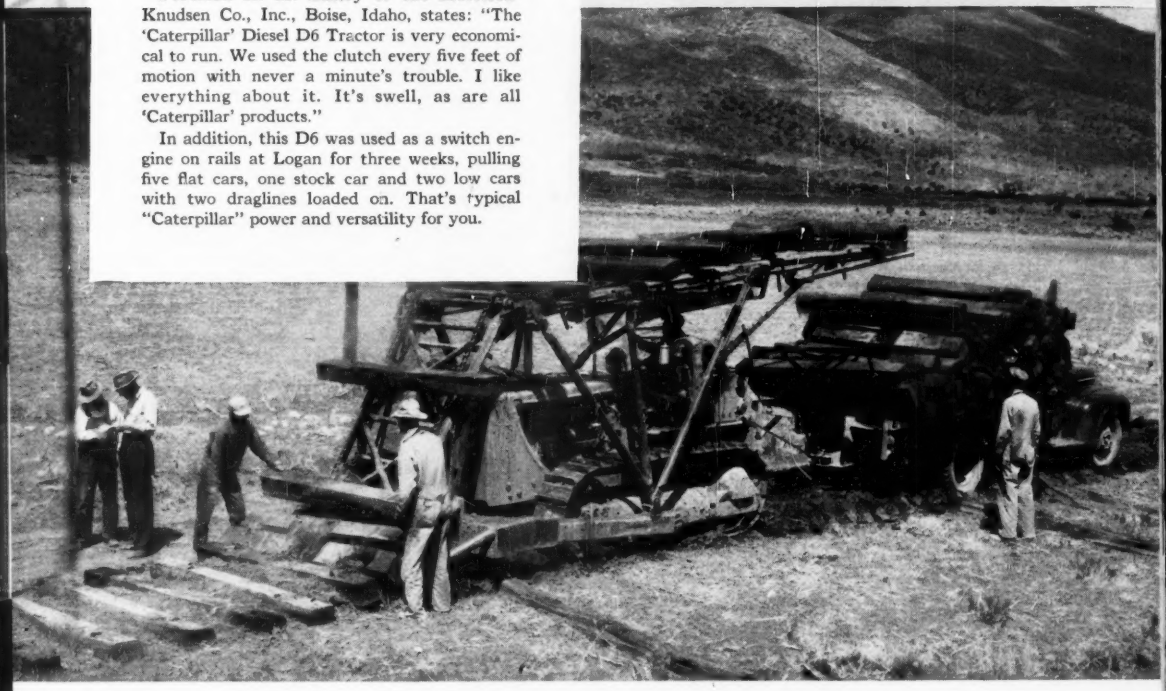
"CATERPILLAR"

. . . for this

ON THIS JOB in the San Pete Valley, a "Caterpillar" Diesel D6 Tractor with a specially built tie loader picks up ties on a branch line of the Denver & Rio Grande Railroad between Moroni and Nephi. It salvaged 38,000 ties in 18 working days—an average of 2100 ties a day.

Foreman H. M. Emery of the Morrison-Knudsen Co., Inc., Boise, Idaho, states: "The 'Caterpillar' Diesel D6 Tractor is very economical to run. We used the clutch every five feet of motion with never a minute's trouble. I like everything about it. It's swell, as are all 'Caterpillar' products."

In addition, this D6 was used as a switch engine on rails at Logan for three weeks, pulling five flat cars, one stock car and two low cars with two draglines loaded on. That's typical "Caterpillar" power and versatility for you.



BOTH of these Utah jobs are different, unusual, tough. Both call for imagination, know-how, power—rugged, dependable, versatile power. Morrison-Knudsen Co., Inc., top-flight contractors of Boise, Idaho, supplied the imagination and know-how. For power they used "Caterpillar" Diesel equipment. On both jobs, "Caterpillar" came through with colors flying.

Wherever, whenever and whatever the job, you can always count on versatile "Caterpillar" Diesel equipment for standout performance. It adapts itself to conditions

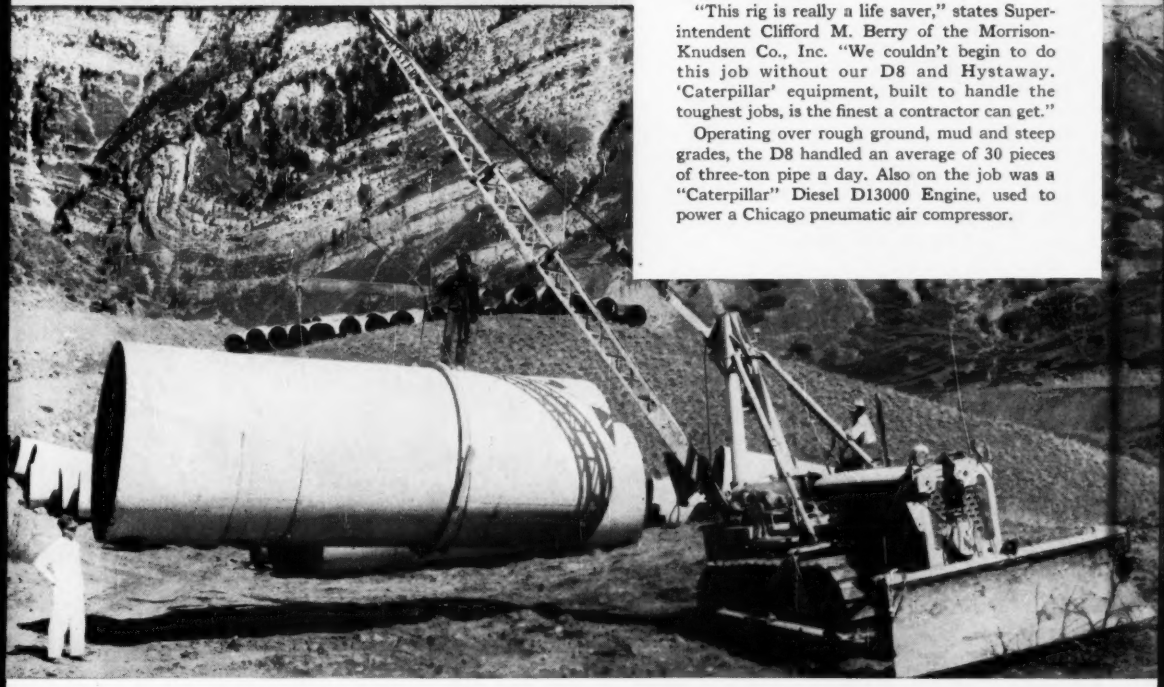
has what it takes

. . . for this

ON THIS JOB in Provo Canyon, a "Caterpillar" Diesel D8 Tractor with Hystaway and 'dozer is a one-man crew installing 8'6" steel pipe—each piece weighing three tons—to replace wood flume 14,400 feet long. First it roughs out the path for the pipe and shovel—then unloads and carries the pipe into line.

"This rig is really a life saver," states Superintendent Clifford M. Berry of the Morrison-Knudsen Co., Inc. "We couldn't begin to do this job without our D8 and Hystaway. 'Caterpillar' equipment, built to handle the toughest jobs, is the finest a contractor can get."

Operating over rough ground, mud and steep grades, the D8 handled an average of 30 pieces of three-ton pipe a day. Also on the job was a "Caterpillar" Diesel D13000 Engine, used to power a Chicago pneumatic air compressor.



that stop less husky equipment—and licks them. In the process it keeps costs down—and that means more profit for you. And you have the added advantage of reliable service from one well-equipped dealer.

CATERPILLAR TRACTOR CO., PEORIA, ILLINOIS

CATERPILLAR DIESEL

REG. U. S. PAT. OFF.

ENGINES • TRACTORS • MOTOR GRADERS • EARTHMOVING EQUIPMENT

FRYING TO FREEZING
in Two Hours

Down "south of the border" a Mexican mining company has chiseled a road right through the heart of the Sierra Madre Mountains. Along its 74 tortuous, twisting miles, ore-laden trucks cross six mountain ranges. Elevations range from 600 to 11,000 feet and temperatures change from 110° to freezing.

GMC Diesels were chosen exclusively for this hazardous hauling job because of their ability to pull bigger pay loads than other engines of comparable size . . . because of their dependable, efficient operation at rapidly changing altitudes. All over America, other GMCs are performing many other different and difficult jobs with equal ease and efficiency.

GMC TRUCK & COACH DIVISION • GENERAL MOTORS CORPORATION

Heavy duty GMCs meet every construction hauling demand . . . with a choice of four gasoline and two Diesel engines . . . single speed, 2-speed, double reduction and tandem rear axles . . . weight ratings up to 90,000 pounds.

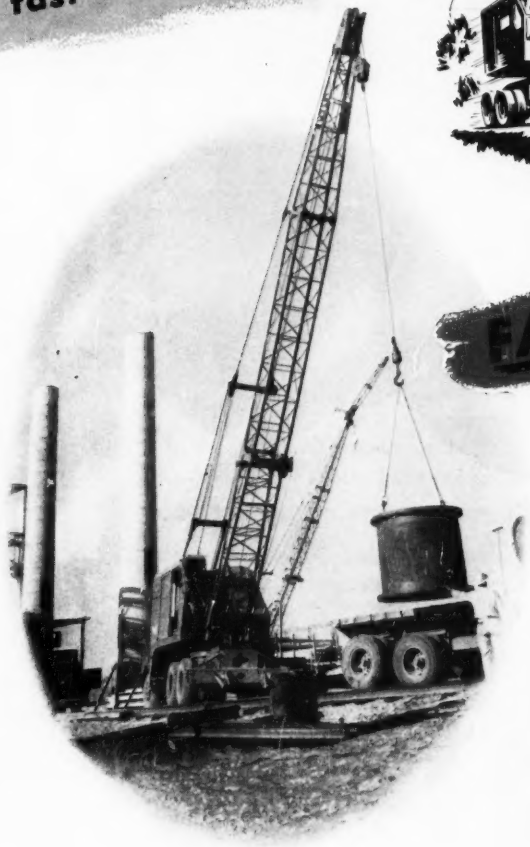
GMC TRUCKS

THE TRUCK OF VALUE

GASOLINE • DIESEL

fast on the highway . . .

FASTER on the job!



Want to "shrink" miles between jobs? . . . Cut time on the job? . . . Handle more jobs? . . . Here's the machine that will do it!

P&H Truck Cranes are dual powered — with one engine *built* for travel and the other built for *work*. Therefore you get better performance both ways — faster moves from job to job at regular highway traffic speeds. Quicker completion of the jobs.

And where the job demands, you can change over to shovel, dragline, clamshell, hoe or pile-driver. P&H Truck Cranes are profit makers everywhere. Send for literature now.

TRUCK CRANES
4494 West National Avenue
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HARNISCHFEGER
CORPORATION

P&H Added Values

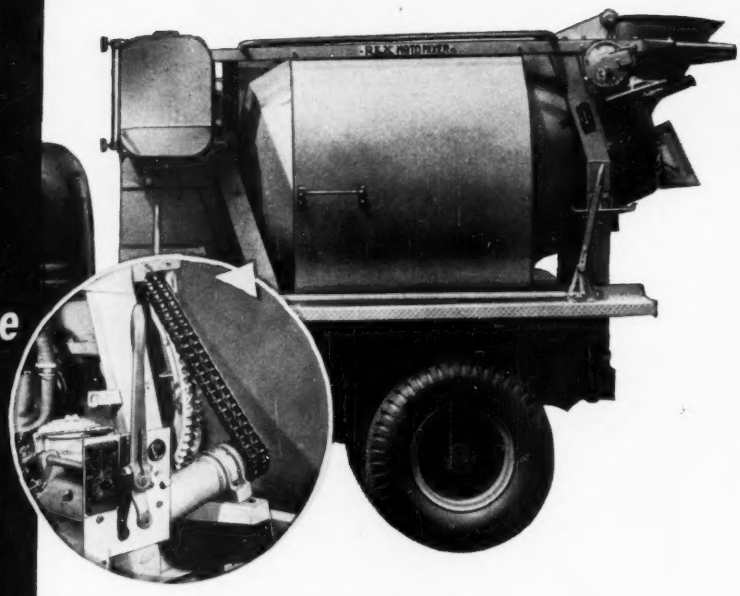
- *Hydraulic control — a new peak in operating ease and safety*
- *Greater stability — with exclusive torsion bar-mounted front axle and lower center of gravity*
- *Independent planetary boom hoist — raises or lowers crane boom smoothly and safely, with or without load*
- *Planetary load lowering — permits "inching" of loads accurately*
- *All-welded construction — greater strength*

Size for size no P&H Truck Crane has ever been outlifted

P&H REMOTE CONTROL AVAILABLE

With this unit you can control all carrier functions (even the horn!) by electric push-buttons — from the operator's position inside the crane cab.

What the REX Chain Drum Drive Means to You!



NO STRAIN WITH CHAIN

Eliminates Binding..... Accommodates Misalignments

Truck mixers are subjected to severe twists and strains as the truck weaves over rough roads. To protect transmission, gears, shafting, power plant . . . to prevent destructive binding action between drum and transmission, Rex Moto-Mixers employ the exclusive chain drum drive. This flexible drive absorbs the shocks and accommodates the *unavoidable* misalignments to which all truck mixers are subjected.

Permits Proper Weight Distribution

Thanks to the Rex Chain Drum Drive, weight can be correctly distributed in Rex Moto-Mixers. There is no need for excessively heavy frames and transmission cases or complicated transmissions, to overcome the effects of misalignment and strains. And weight saved here can be properly distributed to parts where it is needed most . . . bearings, shafting, blades, drum rollers, drum shell, drum supports.

Provides a Uniform Application of Power

The Rex Chain Drum Drive wraps more than halfway around the drum sprocket and more than one-third around the drive pinion to provide a uniform application of positive power. This positive power is applied to the drum over many sprocket teeth. Contrast this design to the gear drives of other truck mixers where the point of contact between drum gear and drive pinion is concentrated on a single gear tooth.

LONGEST LIFE . . . LOWEST MAINTENANCE . . . MORE PROFIT FOR YOU!

Have your Rex Distributor show you how the Chain Drum Drive means more profit to you. Chain Belt Company, 1684 West Bruce Street, Milwaukee 4, Wis.

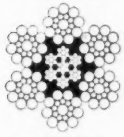
CHAIN BELT COMPANY

. . . REX CONSTRUCTION MACHINERY

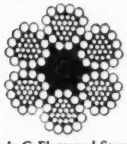
-Preformed-
"HERCULES"
REG. U.S. PAT. OFF.
RED-STRAND
WIRE ROPE

Easy to Handle . . . Safe and Economical to Use

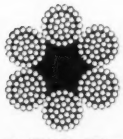
6 x 19 Filler Wire Fiber Core



6 x 19 Seale Wire Rope Core



Style G-Flattened Strand Fiber Core



6 x 37 Filler Wire Fiber Core

6 x 41 Wire Rope Core

"HERCULES" (Red-Strand) Wire Rope has proved its worth by the accurate yardstick of actual performance. For over 60 years the Red-Strand has been a dependable guide to safe and economical wire rope service. Now in the Preformed type, a plus value has been added. As internal stresses are largely eliminated, the rope is less apt to kink . . . it is easier to handle . . . it spools better. But these are not the only advantages. Because internal stresses have been reduced there is less internal wear and more resistance to bending fatigue, which means longer life.

Another and an ever important factor in determining wire rope life is the use of the right construction for the work the rope is to do. To meet this situation, Preformed "HERCULES" (Red-Strand) Wire Rope is made in a wide range of both Round Strand and Flattened Strand constructions. There is a correct type for any heavy duty job. Our Engineering Department will be glad to help you make the right selection.

We invite your inquiries.

"HERCULES"*
RED-STRAND
the DEPENDABLE
WIRE ROPE
for any TOUGH JOB
* REG. U.S. PAT. OFF.

MADE ONLY BY

A. LESCHEN & SONS ROPE CO.

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NEW YORK 6 • CHICAGO 7 • HOUSTON 3 • DENVER 2
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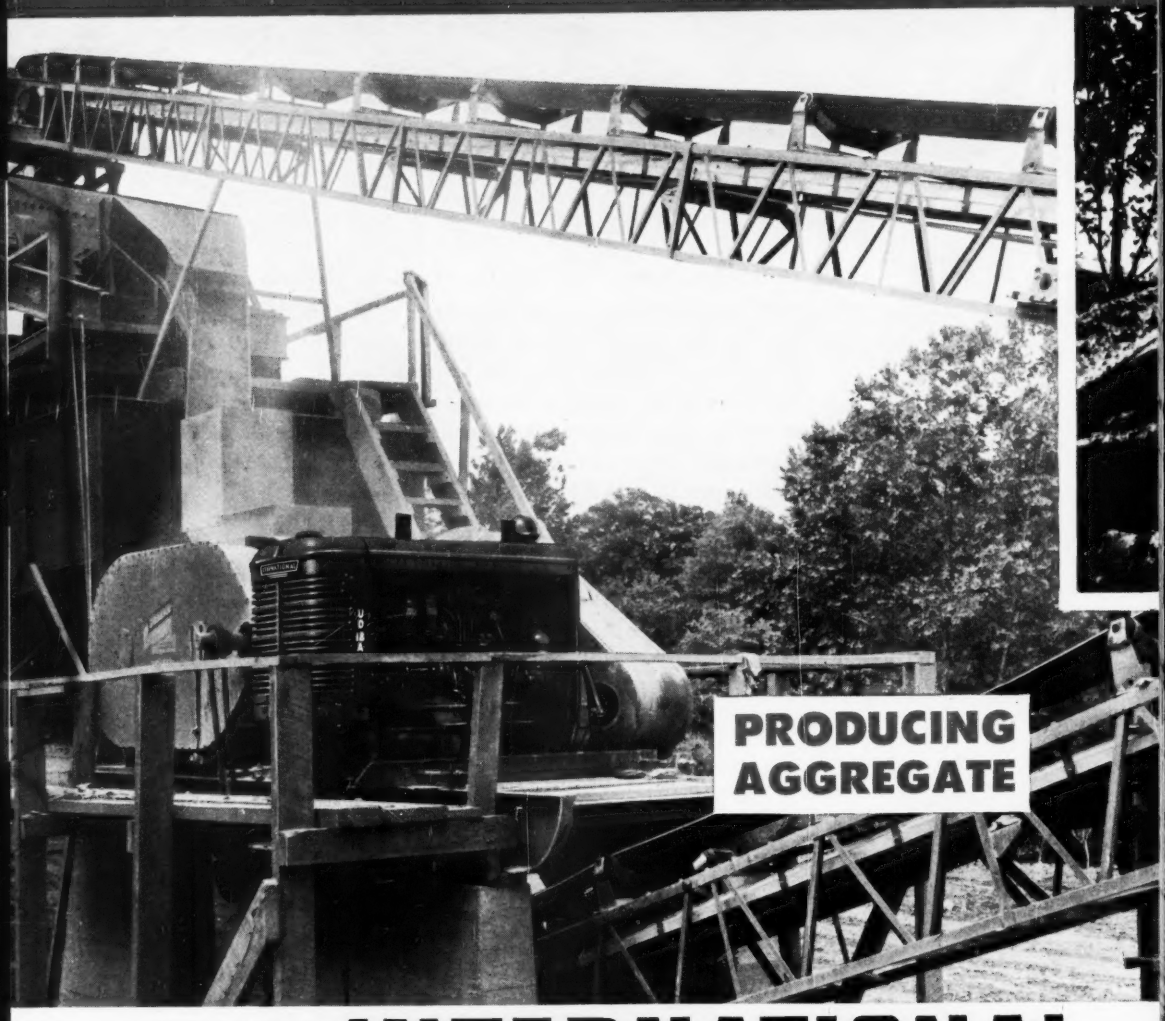
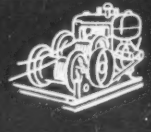
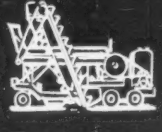
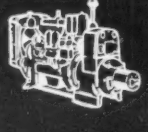
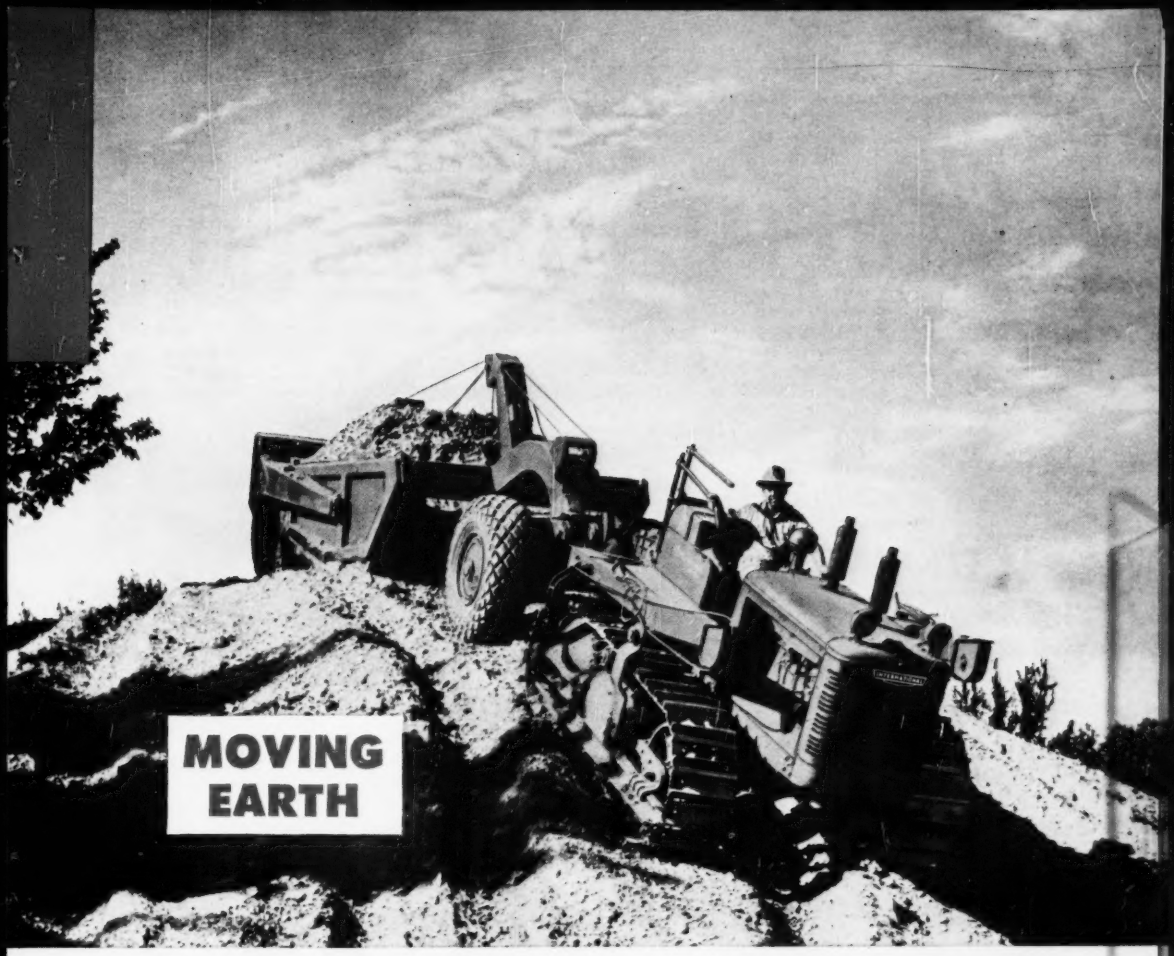
POWER!



CRAWLER TRACTORS
POWER UNITS
DIESEL ENGINES
WHEEL TRACTORS

INTERNATIONAL



INTERNATIONAL ENGINES — **powering tractors or power units—deliver rugged, low-cost power that cuts operating costs to rock bottom.**

Producing aggregate the International UD-18A is one of three International Power Units driving a rock crusher. The low operating cost of these power units is an important factor in profitably meeting the competitive price of crushed stone.

Moving earth to clear the way for a hospital addition is the task of the International TD-18 Diesel Crawler and matched scraper. Averaging 120 yards per hour, the TD-18 did a fast, profitable job of moving a total of 10,000 yards.

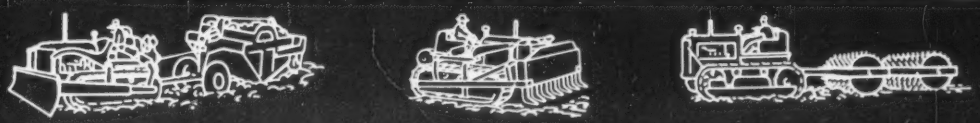
You just can't beat International Power for peak production and low operating and maintenance costs. Visit your International Industrial Power Distributor and let him show you how International Tractors and Power Units will produce more profits on your projects.

INTERNATIONAL HARVESTER COMPANY • CHICAGO

Listen to James Melton on "Harvest of Stars" every Wednesday evening—CBS

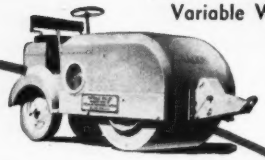
INTERNATIONAL HARVESTER

Industrial Power

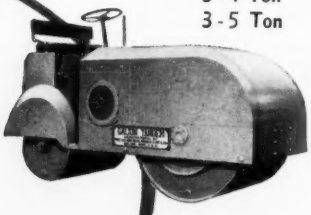


41 YEARS EXPERIENCE

PORTABLE ROLLER
Variable Weight

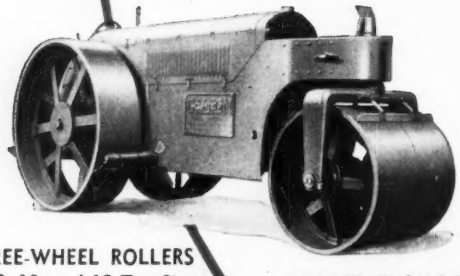


TANDEM ROLLERS
3 - 4 Ton
3 - 5 Ton



GALION
WORLD'S LARGEST MANUFACTURER OF ROLLERS

TANDEM ROLLERS
5, 8, and 10 Ton Sizes
Variable Weight 5 to 14 Tons



THREE-WHEEL ROLLERS
6, 7, 8, 10, and 12 Ton Sizes

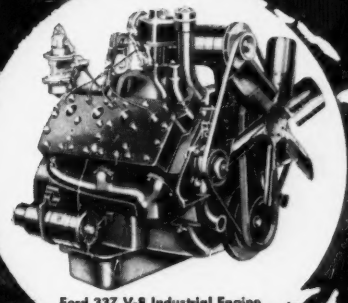
THE GALION IRON WORKS & MFG. CO.
General and Export Offices
Galion, Ohio, U. S. A.
Cable Address: GALIONIRON, Galion, Ohio

Pick Ford Power-Right 3 Ways

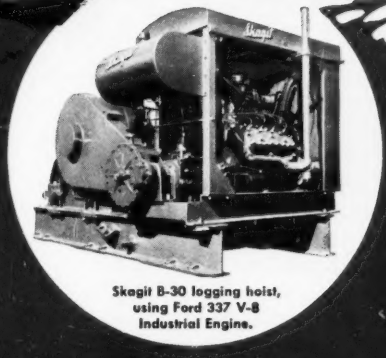
1 RIGHT POWER — for your application, with a choice of five rugged new models now available in the Ford Industrial Engine line.

2 RIGHT FEATURES — all the latest advancements of Ford's "out-front" engineering are incorporated in Ford Industrial Engines.

3 RIGHT SERVICE — as near to you as your Ford Dealer. Operators know that Ford Industrial Engines are always on the job.



Ford 337 V-8 Industrial Engine
(337 cu. in. displacement)



Skagit 8-30 logging hoist, using Ford 337 V-8 Industrial Engine.

Ford INDUSTRIAL ENGINES

For power, pick Ford! There's a model just *right* for your needs in the great new Ford "Power-Family" . . . a "four" of 120 cu. in. displacement . . . two "sixes"—226 cu. in. and 254 cu. in. displacement . . . two V-8's—239 cu. in. and 337 cu. in. displacement. Here's the *right* power for you—and every one completely new. Ford Industrial Engines are used around the world for farm implement power, standby power, material handling, construction, pumping, many other applications. Send post card today for full specifications.

FORD MOTOR COMPANY
INDUSTRIAL AND MARINE ENGINE SALES DEPARTMENT
Dearborn, Michigan

YOUR JOB IS WELL-POWERED WHEN IT'S FORD-POWERED

You Can Handle More Jobs

with BUCYRUS-ERIE 2-WHEEL SCRAPERS

G-38	G-58
3½ cu. yd. (struck) 4⅜ cu. yd. (heaped) Requires 35 to 55 hp. tractor	5 cu. yd. (struck) 6¼ cu. yd. (heaped) Requires 50 to 80 hp. tractor

- ★ Loads at front, dumps in rear.
- ★ Simple hydraulic control — positive down pressure on the blade.
- ★ Double curve cutting edge for fast uniform loading.
- ★ Balanced design, non-slap hitch for fast hauling
- ★ Ample flotation — low rolling resistance, exceptional stability.
- ★ Steep dumping angle for fast clean dump.

HERE is equipment that you can count on to keep busy earning profits! Bucyrus-Erie 2-wheel scrapers needn't ever be idle, because they're versatile — capable of handling a host of jobs. Fast and flexible, they can be used with any make of tractor, crawler or rubber tired. They can keep dirt moving on irrigation and drainage projects . . . can give railroads, highway departments, farms a hand. They can handle overburden stripping for mines, reroute streams and channels, build artificial lakes. In construction work they can handle small fill jobs, releasing larger equipment for other tasks. They can build fills over the edges of banks, backfill culvert wing walls, repair washouts, dig and carry loam, handle grading and finishing.

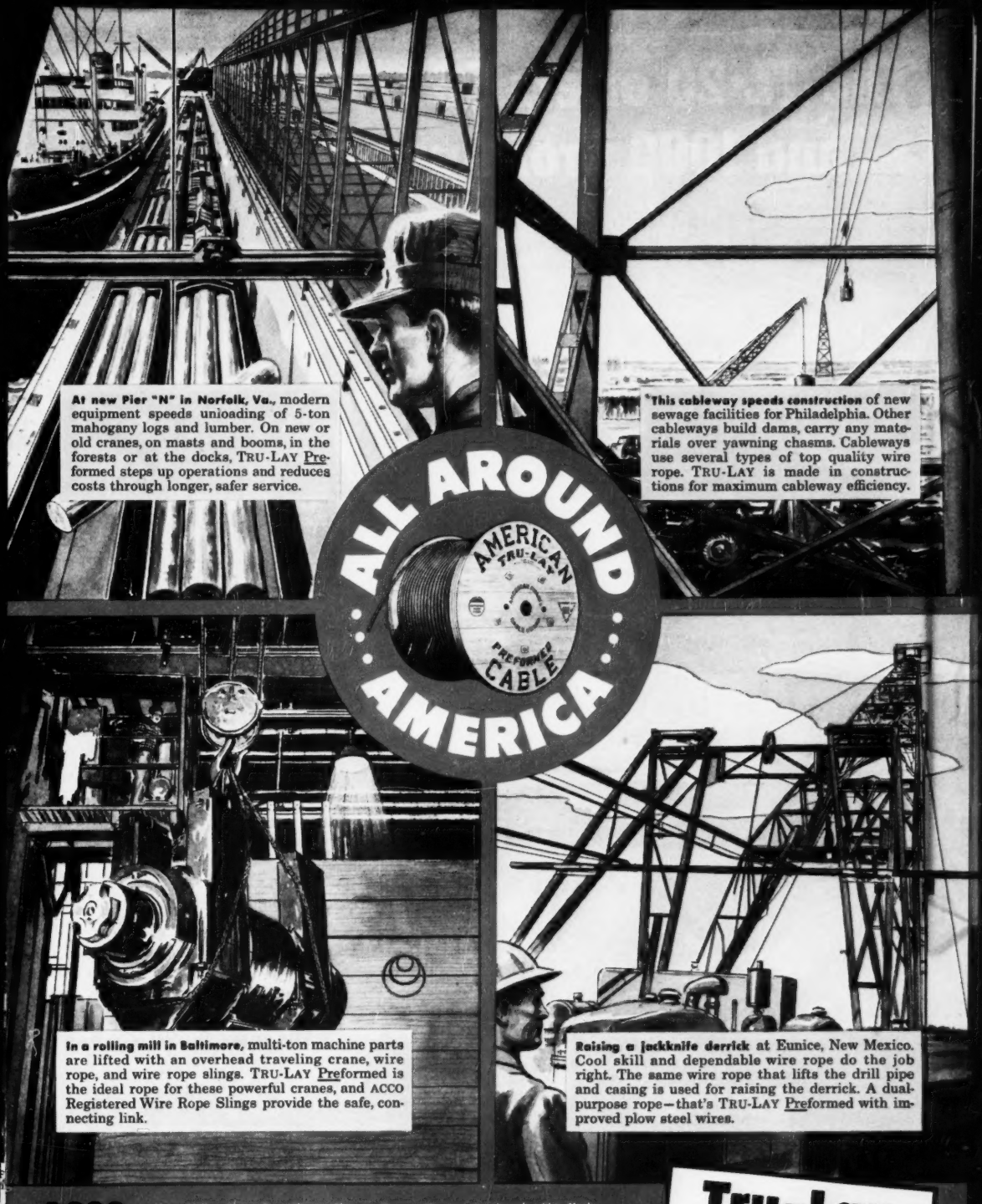
See your International Industrial Tractor Distributor about the profit-earning possibilities of Bucyrus-Erie 2-wheel scrapers on your jobs.

BUCYRUS-ERIE CO., SOUTH MILWAUKEE, WIS.

104T48

For BUCYRUS ERIE TRACTOR EQUIPMENT See Your

INTERNATIONAL INDUSTRIAL TRACTOR DISTRIBUTOR



At new Pier "N" in Norfolk, Va., modern equipment speeds unloading of 5-ton mahogany logs and lumber. On new or old cranes, on masts and booms, in the forests or at the docks, TRU-LAY Preformed steps up operations and reduces costs through longer, safer service.

This cableway speeds construction of new sewage facilities for Philadelphia. Other cableways build dams, carry any materials over yawning chasms. Cableways use several types of top quality wire rope. TRU-LAY is made in constructions for maximum cableway efficiency.

In a rolling mill in Baltimore, multi-ton machine parts are lifted with an overhead traveling crane, wire rope, and wire rope slings. TRU-LAY Preformed is the ideal rope for these powerful cranes, and ACCO Registered Wire Rope Slings provide the safe, connecting link.

Raising a jackknife derrick at Eunice, New Mexico. Cool skill and dependable wire rope do the job right. The same wire rope that lifts the drill pipe and casing is used for raising the derrick. A dual-purpose rope—that's TRU-LAY Preformed with improved plow steel wires.

ACCO

Wilkes-Barre, Pa., Atlanta, Chicago, Denver, Houston, Los Angeles, New York, Philadelphia, Pittsburgh, Portland, San Francisco, Seattle, Tacoma, Bridgeport, Conn.

AMERICAN CABLE DIVISION
AMERICAN CHAIN & CABLE

In Business for Your Safety

Tru-Lay Preformed Wire Rope

The TL·20 offers 50 combinations and 1000 profit possibilities

Single engine, Self-Propelled TL-20 rubber-tire crane.
Dragline mounted on 2-speed Chain Drive Crawler.
Rubber-tire Moto-Crane plus gooseneck hoe boom.

● All jobs are not the same; they vary in conditions, size, material, ground or travel conditions. It's important to your profits to have the right machine in the right place at the right time. That's why the selection of a Lorain TL-20 for today's job is your protection against tomorrow's ever-changing requirements.

With the TL-20 you have the choice of 50 working combinations—10 mountings and 5 interchangeable booms. And, remember, every one is a flexible combination. You can not only switch booms in a jiffy but because of the TL-20's modern Unit Assembly it's possible to interchange mountings as well.

If you're one to plan ahead, plan now to see the TL-20 at your local Thew-Lorain distributor. It's the one high production unit in the ½ yd. class that can fit itself to both today's jobs and those of the future.

THE THEW SHOVEL COMPANY
Lorain, Ohio

THEW-LORAIN 50th ANNIVERSARY 1893 1943

Lorain Thew TL 20 Lorain

Cummins Diesels Save Fuel

Compare the cost! **Operate a Cummins Diesel alongside other engines—diesel, gasoline, or butane—then check your fuel bills. Here's what our customers report:**

Annual Savings: $2620.00

Yearly fuel costs for a Cummins-powered truck used on an off-highway haul, consisting of three 22-mile round trips per day, are $2620.00 less than the fuel costs for a gasoline-powered truck used on the same haul. That's because the Cummins-powered truck shows a daily fuel cost of $3.47 against $13.55 per day for the gas job.

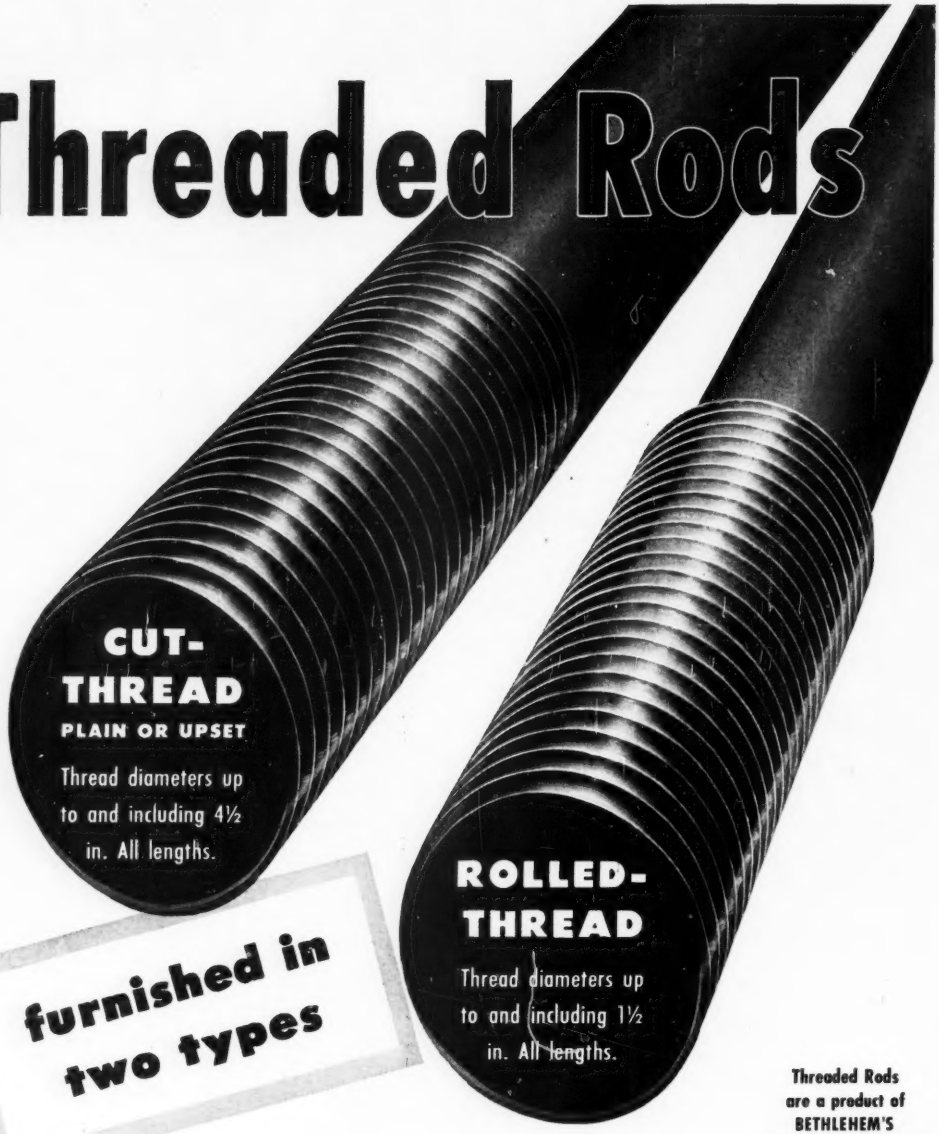
Annual Savings: $1138.80

Yearly fuel costs for a Cummins-powered earth mover on a multi-million-yard earth-moving project are $1138.80 less than the fuel costs for an earth mover powered by another make of diesel and doing similar work. That's because the Cummins-powered unit, while making more trips and carrying heavier loads, uses only 25.7 gallons of fuel per shift against 33.5 gallons per shift for the other diesel.

For a complete explanation of the Exclusive Cummins Fuel System and how it can cut your fuel bills, write Cummins Engine Company, Inc., Columbus, Ind., for Bulletin 5275.

CUMMINS ENGINE COMPANY, INC., • COLUMBUS, INDIANA

Threaded Rods


CUT-THREAD
PLAIN OR UPSET
Thread diameters up to and including 4½ in. All lengths.
ROLLED-THREAD
Thread diameters up to and including 1½ in. All lengths.

furnished in two types

Threaded Rods are a product of BETHLEHEM'S LEBANON, PA., PLANT

Bethlehem Threaded Rods can be furnished with turnbuckles, clevises, nuts or other accessories. They come straight or bent, in single or multiple units, asphaltum-dipped or hot-dip galvanized. Prompt deliveries are the rule. Get in touch with us for details.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.
On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation
Export Distributor: Bethlehem Steel Export Corporation

BETHLEHEM STEEL

Bethlehem supplies every type of Fastening

Provo Brothers, Syracuse, N. Y., recently completed a $906,000 contract on State Highway #12 between Remsen and Boonville, Oneida County, N. Y. Gulf lubricants helped keep equipment operating smoothly and efficiently on the job.

"Our equipment stands up longer, delivers better performance with GULF QUALITY LUBRICANTS"

says this Contractor

Provo Brothers of Syracuse, New York, is one of many leading contractors who have found that better lubrication with Gulf quality oils and greases is reflected in the operating records of equipment.

Engineered into Gulf lubricants is greater stability and endurance—they stand up and provide better protection to contractors' equipment under all types of operating conditions. Mud or dust—hot or cold, Gulf lubricants insure top-notch performance and a minimum of mechanical delays.

It will pay you to use Gulf quality lubricants on your next contract. Ask a Gulf Lubrication Engineer to recommend the proper types and grades exactly suited for your particular requirements.

Gulf Oil Corporation • Gulf Refining Company

Division Sales Offices:

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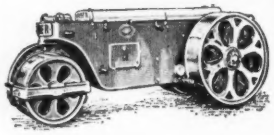
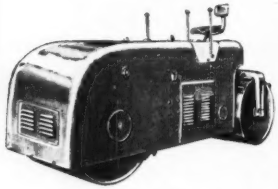
GULF

FOR DEPENDABLE ALL-YEAR-ROUND PERFORMANCE ON MANY JOBS . . .

THE HUBER MAINTAINER IS YOUR BEST BUY



HUBER 3-WHEEL ROLLERS
4 models — 4 to 12 Tons



HUBER TANDEM ROLLERS
5 models — 3 to 14 Tons

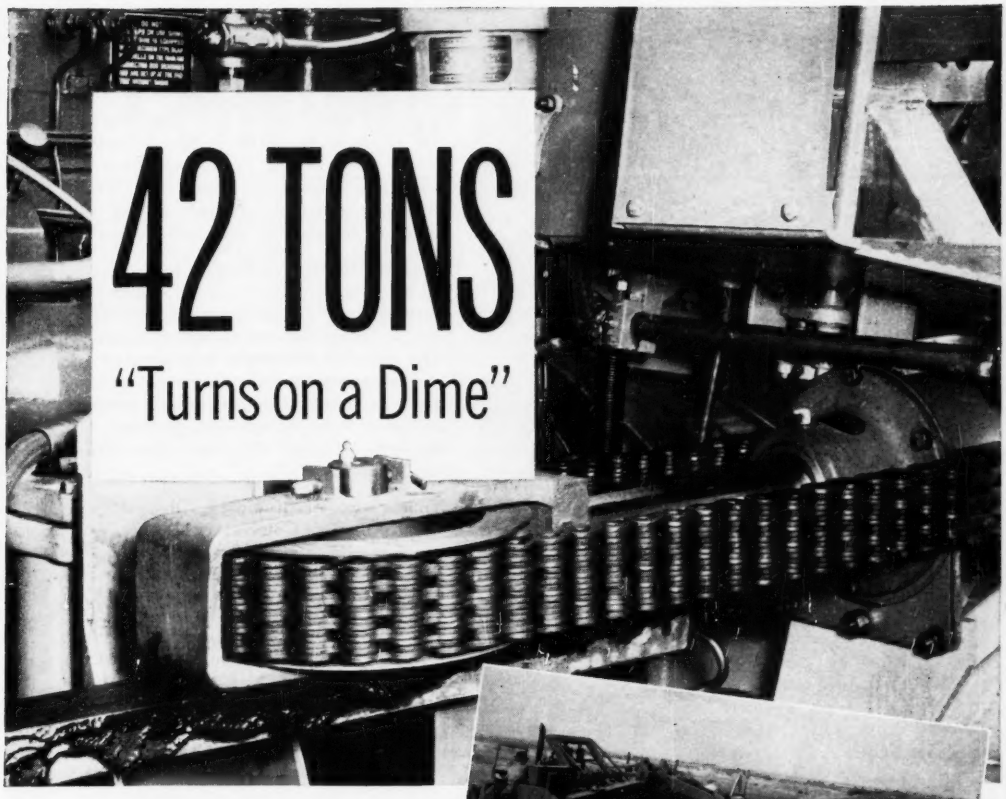
Lick your year-round maintenance problems with the Huber Maintainer. It's a versatile and dependable machine—built to handle every phase of highway, road, street, and airport maintenance at savings to you! The Huber Maintainer with its hydraulically operated auxiliary units is readily adaptable for service as a bulldozer, patch roller, lift loader, snow plow, rotary broom or berm leveler. Ask any experienced operator about the Maintainer! He'll speak well of Huber's advanced design . . . rugged "engineered" construction . . . rigid material specification . . . and other manufacturing skills that add up to dollar savings and longer years of trouble-free service for you.

Remember, too, that Huber's complete line of road machinery—3-wheel rollers . . . tandem rollers . . . trench rollers has for years been a standard in the construction field. See a Huber before you buy any road machinery. Write today for descriptive bulletins and name of dealer nearest you.

HUBER

THE HUBER MFG. COMPANY
Marion, Ohio, U.S.A.

HUBER *3 Wheel • Tandem* ROAD ROLLERS *and* MAINTAINERS

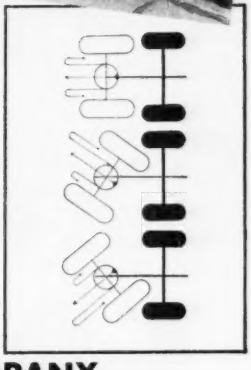


WHITNEY *Chain*

Helps give Terra-Cobra positive steering

The Wooldridge Terra-Cobra — massive self-propelled earth-mover — features among its advantages a unique two-wheel hydraulic steering mechanism. Actuated by the steering arm, the front wheels carrying the motor unit are swivelled and automatically locked at the desired degree of turn or travel until the operator wishes to change his direction. This "tru-control" steering means higher travel speeds without fear of jackknifing even on soft shoulders or embankments.

To assure positive transmission of power from the hydraulic pistons to the steering wheels, Wooldridge uses *Whitney* 1¼" pitch, 8 x 8, special cable chain. And for a good reason — these husky alloy steel chains easily withstand the severe high loading and shock loading conditions encountered in earth moving operations. For additional dependability, Whitney Roller Chains are also used to transmit power from the motor to the driving wheels.



Whether your equipment involves earth-movers, graders, scrapers, etc., it is good business to *standardize* on Whitney Chains and Cut Tooth Sprockets . . . *the all steel drives.* Write for complete information and specifications.

WHITNEY CHAIN & MFG. COMPANY
Division of Whitney-Hanson Industries Inc.
222 HAMILTON STREET, HARTFORD 2, CONNECTICUT

DAY in and day out, more and more yards are moved on Goodyear Earth Mover All-Weather tires. Experienced equipment operators know that this great tire is *right* for rolling yardage — right on schedule at rock-bottom cost!

Designed to carry maximum loads over all kinds of terrain, the large diamond pattern of the Earth Mover All-Weather distributes the load evenly to the carcass. The rounded diamonds reduce cutting and snagging, and the flat wide tread gives maximum flotation in soft going and even wear on firm surface roads — the nearest to an all-purpose tire that can be built.

That's why Earth Mover All-Weather tires — like *all* Goodyear work tires — are first choice with users everywhere. They stay *first* choice year after year because they keep on delivering low-cost, long-life performance.

This tire moves the earth on time!

A RIGHT TIRE FOR EACH JOB!

BUY and SPECIFY GOODYEAR — it pays!

EARTH MOVER SURE-GRIP
for maximum traction
on drive wheels

HARD ROCK LUG
for super-stamina
in all rock work

We think you'll like "THE GREATEST STORY EVER TOLD"—Every Sunday — ABC Network

GOODYEAR

All-Weather, Sure-Grip—T.M.'s The Goodyear Tire & Rubber Company

MORE YARDS ARE MOVED ON GOODYEAR OFF-THE-ROAD TIRES THAN ON ANY OTHER KIND

Construction Methods

Volume 31 JANUARY, 1949 Number 1

CUTS AND FILLS

OUR CUP of utter confusion runneth over with latest interpretations of the "overtime on overtime" provisions of the Wage and Hour Act as applied to construction. We don't see how any contractor can keep his payrolls straight under the existing bewildering situation. It will take more than a Philadelphia lawyer to figure it out—all the barristers in the City of Brotherly Love would be sorely perplexed over it.

OF COURSE the law applies only to activities concerned with interstate commerce. What kind of construction activities are considered interstate commerce? Your guess is as good as anyone's, but here are a few decisions: New building is exempt, but additions or alterations to a building or plant already producing goods for commerce come under the law. Railroads, highways and bridges are considered instruments of interstate commerce, therefore, such construction is under the act. Utility construction destined to provide services for industries engaged in interstate commerce, or destined to operate across state lines, is likewise under the law. Better get a specific ruling on every job to be safe, for penalties for violation, intentional or not, may be severe.

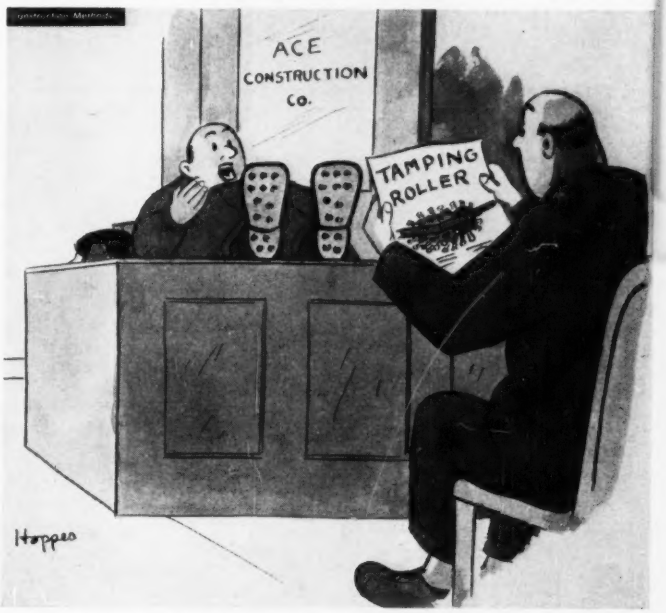
ALTHOUGH YOUR JOB as a whole may be exempt, certain employees may still be subject to the act. Workmen crossing a state line between their homes and place of employment are considered working in interstate commerce. Also included in this category are employees unloading or handling material that has moved in interstate commerce.

WHAT IS OVERTIME? The Wage-Hour Office rules: "Only those premium payments that are contingent upon the employee having worked a specified number of hours or days in accordance with a bona-fide standard may be considered true overtime payments." This apparently means that extra compensation for more than 8 hours and for Saturday and Sunday, if provided for by union contract or long custom, is true overtime. But if a worker has not worked a full week up to Saturday, then his extra pay for Saturday and Sunday is considered as straight time to be figured in at regular rate, subject to overtime premium.

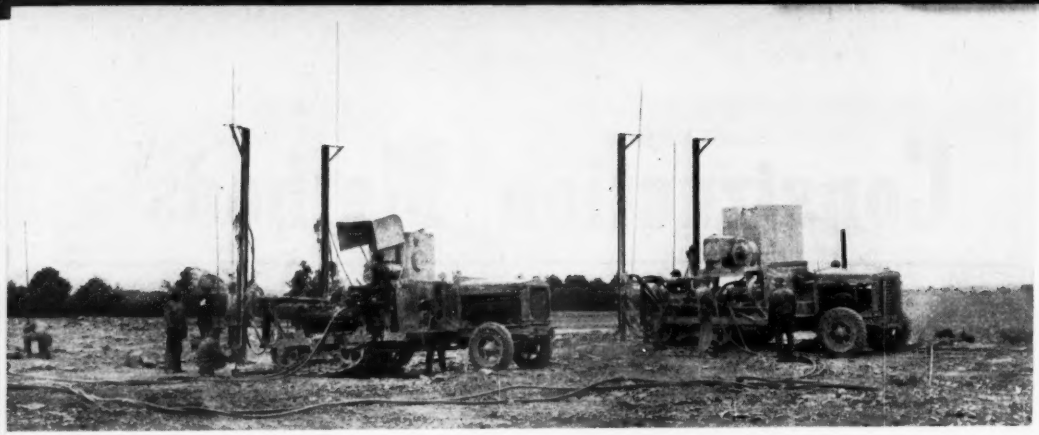
REGULAR RATE is to be computed by dividing the total compensation for the work week, minus any time overtime premiums, by the number of hours worked by the man in the week. We wish you luck in your computations, but suggest you start your payroll week on Monday morning and don't work more than 40 hr. per week, if you want to play safe.

THE WHOLE CONSTRUCTION INDUSTRY should get busy right now in working for amendments to the act that will bring the law into the realm of sensible and reasonable understanding.

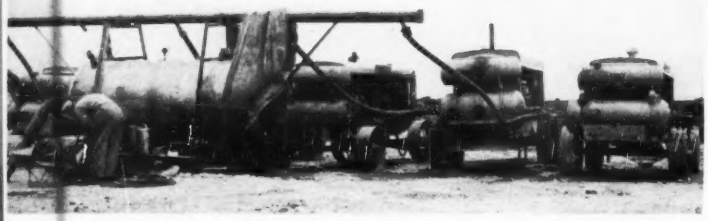
ON THE COVER—Rain or snow, night and day, construction continues on Hungry Horse Dam, U. S. Bureau of Reclamation's big project in northwestern Montana near Glacier National Park. Here Clem Cain, driller for General-Morrison-Knudsen-Shea, operates his Chicago-Pneumatic wagon drill in a snowstorm as a demonstration that construction must go on, despite the weather.—Bureau of Reclamation Photo



"Notice the special wedge shaped feet, with hardened surface for longer life."

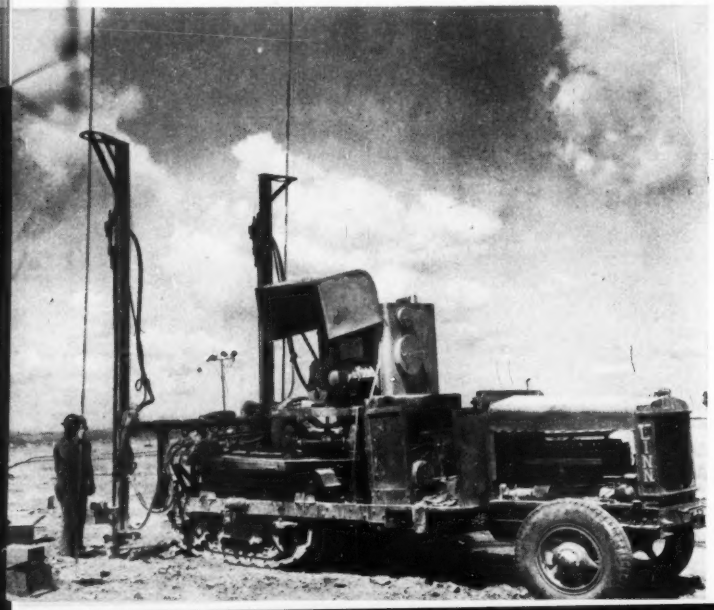


Drill Rigs on Half Tracks Speed Airport Blasting



FIVE PORTABLE COMPRESSORS with total capacity of 1,470 cfm. feed into big receiver mounted on skids. Entire compressor outfit is moved ahead from time to time to keep up with drill rigs.

RING PLATES at top and cupped steps at bottom of 14-ft. towers (below) to hold 24- and 30-ft. steel between uses are features of two drill rigs. Each also carries portable dust collectors.—Ingersoll-Rand Photo

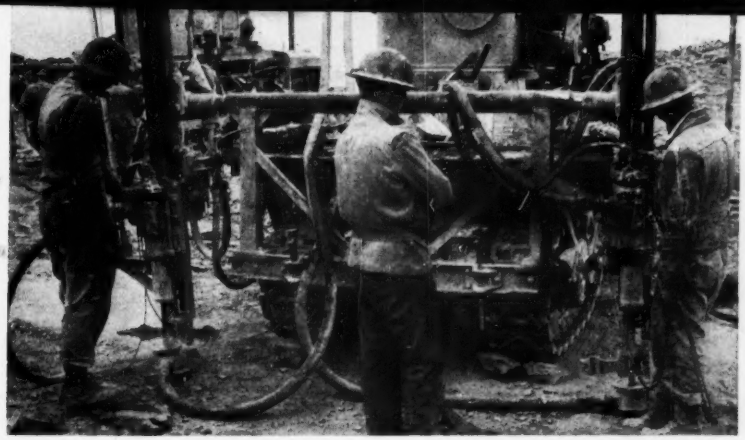


IT'S ROUGH COUNTRY through New York's Southern Tier of counties, and the only way Broome County and CAA officials could figure out to build a big airport to serve the Tri-Cities of Binghamton, Endicott and Johnson City was to slice off the top of near-by Mount Ettrick. Slicing off mountains up there means lots of rock work, and D. W. Winkelman Co., Inc., of Syracuse, found nearly a million yards of rock in their 2,600,000-yd. cut-and-fill job of leveling off the airport, wound up just recently.

Winkelman licked the rock work with three clever new-fangled drill rigs—simply a pair of long-feed wagon drills mounted on Linn Halftrack trucks. Two rigs, equipped with dust collectors, were designed for down-hole drilling up to 30 ft. deep. The third rig, also kept as a standby unit, carried two mountings to permit drills to be positioned for horizontal bench drilling, as well as for putting down vertical holes.

Drill mountings for the half-tracks were simple but efficient. On two rigs a horizontal pipe bar 5 ft. above ground level made up the top member of a steel frame fastened to the rear of the truck. The pipe, to which the drill towers were clamped, permitted a drill spacing from 10 to 12 ft. The drills rode on special feed towers 14 ft. high for a 12-ft. drill run.

At top of each tower was a plate collar through which the drill steel extended between runs. Drill steel was in three lengths, 12, 24 and 30 ft. When not in use, the longer



MOUNTING for 14-ft. wagon drill towers is pipe bar and welded steel frame assembly bolted to back end of Linn Halftrack truck. Portable dust collector, carried on truck frame, is hooked to hoods collaring the two drill holes.

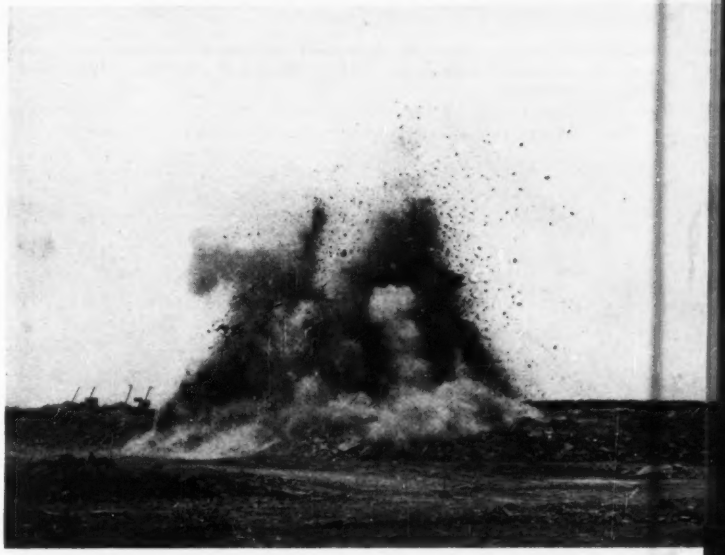
SPARE RIG carries standard 12-ft. wagon drill towers that can be fastened on top bar for down holes or on extra bottom bar for horizontal lifter holes.—Ingersoll-Rand Photo

steels were set on a step bracket at the lower end of tower, held in vertical position, yet out of the way, by the top collar. This feature saved lots of awkward manhandling of the long steel. Drills were Ingersoll-Rand X71 riding on DBM-3 mounts.

Each of the two regular outfits carried a dust collector, one Complete and one Markley unit. These helped a lot, but were overloaded as these models each had an effective capacity of only one drifter each.

The spare rig carried standard 12-ft. wagon drill towers without top collar and bottom step for holding the steel. An extra pipe bar on the rear frame only 1 ft. above the ground permitted positioning the drills for lifter holes in bench drilling. This unit was not equipped with a dust collector.

Most of the shots were fired from down-drilled holes. When lined up for normal down drilling on 10x10-ft. or 12x12-ft. patterns,



BLAST set off by Rockmaster milli-second delay caps shatters a bench with little fly rock.

AFTER BLAST, Northwest 80 shovel (below) moves in to load broken shale rock into Euclid and Tournapull wagons for haul to fill or to waste dump. Euclids are stepped up to 17-yd. capacity with sideboards.

EXCAVATION slightly exceeds fill requirements, so some of rock goes to a waste dump. Here a Euclid truck dumps a load at bottom of waste pile. Note size of some of rock pieces.

THIS TRIO was responsible for moving 2,600,000 cu-yd. at Broome County Airport in seven months. They are, left to right, DWIGHT W. WINKELMAN, head of his firm, E. H. (TED) EASTER, secretary of corporation, and project manager, JIM NICOLSON.

one rig followed the other in tandem down a row of stakes designating hole locations. The drill units worked on alternate pairs of holes, each drill averaging 90 ft. of hole per hr.

Air for the drills came from a bank of five portable compressors feeding into a common receiver. The whole assembly was moved ahead from time to time to keep within efficient hose distance of the drills.

Holes were drilled from 25 to 30 ft. deep with Jackbits starting at 2⅜ in. and stepping down to 2¼ and then 2⅛ in. After some 40 ft. of drilling in the gritty shale, the detachable bits were sent to Syracuse for regrinding.

The holes were loaded with 30 or 40 percent Atlas Gelodyn No. 1 in 2x12-in. cartridges within 6 ft. of the surface, then stemmed with sand. Shots were fired with Atlas Rockmaster milli - second delay caps. Average rock yield for the job was 4.6 cu.-yd. per lb. of powder.

Winkelman's contract for $1,968,-627, let in December, 1947, included grading, drainage and unprocessed rock base for the runways. Paving, buildings and lighting will come under future contracts. Grading started last April, and though the contract completion date is next April 25, the job was finished last November. Cuts amounted to 2,658,000 cu.yd., fills were 2,549,000 cu.yd., giving a balance factor of 1.036. The airport includes two runways 150x5,600 ft. and 150x5,000 ft., and a taxiway.

Winkelman tackled the job with four Northwest 80 and one Bucyrus-Erie 54B shovel, 25 Euclid wagons, three Tournapull wagons, seven Tournapull scrapers, three

MUCH OF COMMON EXCAVATION is handled by Euclid loader, pulled by International TD 24 tractor loading into Euclid bottom-dump wagons.—Ingersoll-Rand Photo

SOME OF ROCK is spread by bulldozers and rolled for parking areas.

Caterpillar* graders, and a Euclid loader. Maximum production reached 24,000 cu.yd. per day of two 10-hr. shifts for the shovels and one shift for the loader.

Auxiliary equipment included bulldozers, 3-wheel rollers, service trucks and a hydraulic crane. The shale rock was mighty tough on tires, for more than $100,000 was spent for tire replacements for the wagons alone.

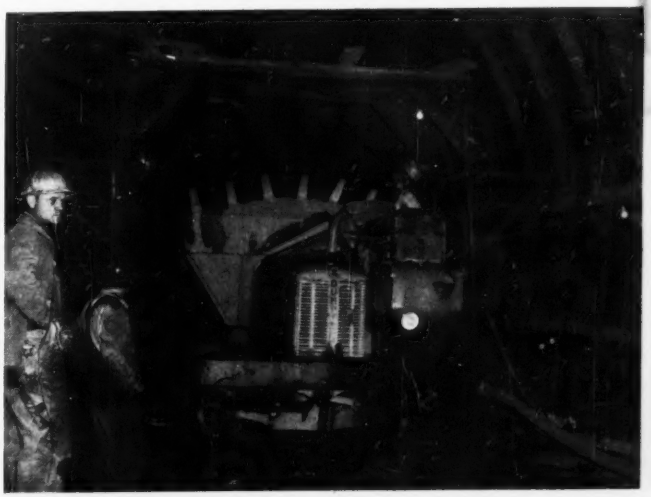
The project was designed by Stevenson, Seelye and Value, New York consulting engineers for D. H. McFarland, Senior Engineer for Broome County. For the D. W. Winkelman Co., Inc., the job was under the general direction of L. S. Cain, general manager of construction projects, with Jim Nicolson as project manager, Ken Fuller as general day superintendent and Bill Anderson as night superintendent.

Shovels and Trucks Muck Out Tunnels

DIVERSION FOR Blakely Mountain flood-control and electric power reservoir on the Ouachita River near Hot Springs, Ark. will be through two 1,600-ft. tunnels, concreted to 30-ft. and 19-ft. dia. The tunnels are being driven simultaneously from their downstream portals by four California contractors operating as joint-venturers. Known as the S.B.H.U. Co.'s, they are: Stolte, R. A. Bell, C. A. Harney and United Concrete Pipe Corp.

Initial drilling is by jumbos mounting eight and ten 4-in. Ingersoll-Rand drifters. Loading is by ½-yd. and ¾-yd. Osgood diesel shovels with 12-ft. boom and 11-ft. stick. Haulage is by Koehring 6½-yd. Dumptors, and the compressed air plant contains eight 365-cfm. Gardner - Denver compressors. Tunnel liner is Commercial Shearing and Stamping Co. 10-in., 35-lb. steel beams at 3-ft. centers, backed with ¼-in. liner plate down to the one-quarter points, and timber lagging below.

Ralph A. Bell and George Loorz are construction superintendents and Ted Stewart is tunnel superintendent. The project is being built by the Corps of Engineers, under the supervision of Col. R. G. Lovett, district engineer, Vicksburg District, and Col. John H. Trescot, resident engineer.



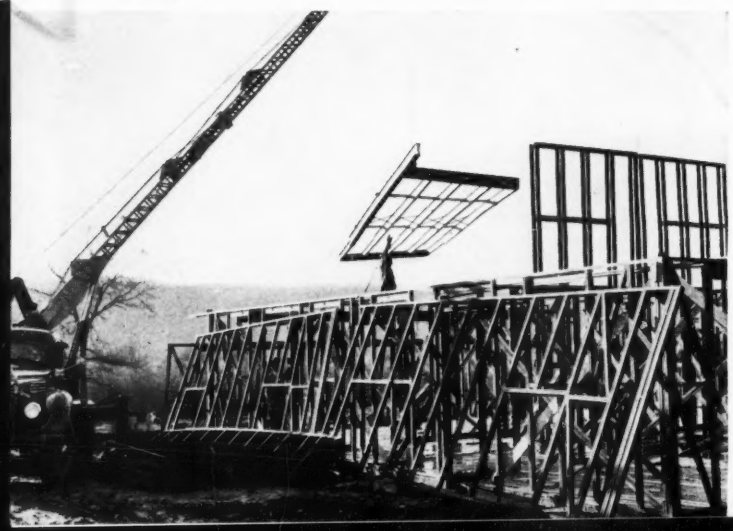
DUMPTORS RUN THROUGH drill carriages on Blakely Mountain Dam diversion tunnels.

1. Steel frames trucked to job . . .
Stran-Steel from Detroit, fabricated into panels at Bridgeport, is trucked to McConaughy Terrace project in New Haven, Conn. By careful scheduling, right sections are delivered to exact spots at right time.

2. Stud sections bolted to concrete . . .
Prefab stud sections for first floor are secured to foundations With ½-in. bolts previously embedded in concrete. Tops of sections are fastened with screws.

Housing Built by Assembly Line Method

3. Crane places floor sections . . .
Prefabricated joist assembly is lowered into place by Bucyrus-Erie Hydrocrane where it will be secured with screws. Center partition section in middle of structure is two stories high.



APPLICATION of automobile assembly line methods to construction of housing units with Stran-Steel nailable members is a combination resulting in fast production at the New Haven (Conn.) Housing Authority's McConaughy Terrace project. By subcontracting with Builders' Steel Framing Inc., Bridgeport, Conn., for delivery and erection of prefabricated frame sections, Tom Amatruda, general contractor, is cutting construction time considerably on the $3,000,000 garden-type housing job.

Here's how the system works. Stran-Steel, produced by the Great Lakes Steel Corporation of Detroit, is assembled into prefab sections by Builders' Steel who tailor the frames to specifications of the contractor. Fusco-Amatruda Co., New Haven contractors, pour the

4. Joists strengthened by bridging . . .
Diagonal bridges connected to joist sections in shop increase rigidity. Nailing groove on bottom of joist can be seen.

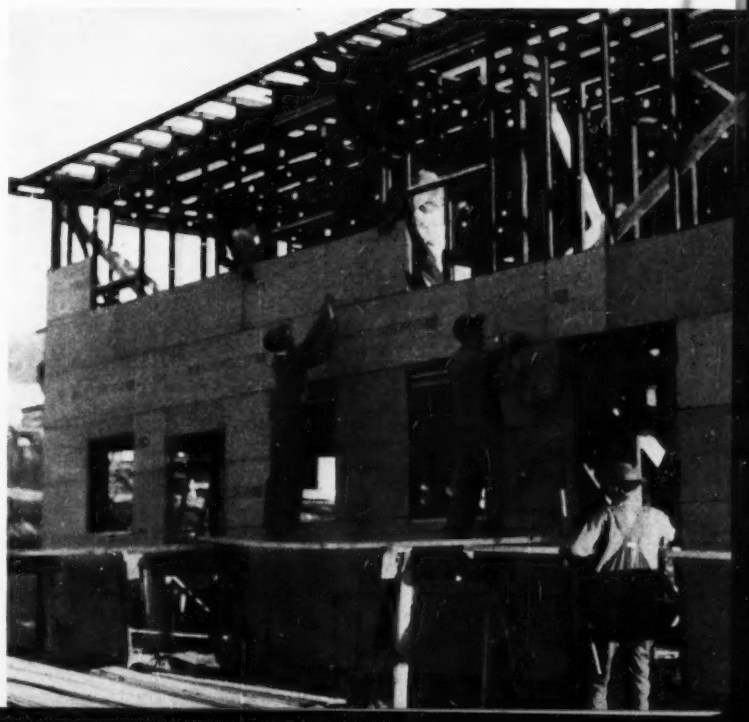
5. Second-story studs erected . . .
Lightweight stud section is moved into place. Braced temporarily with sheathing board, it will be screwed to joists.

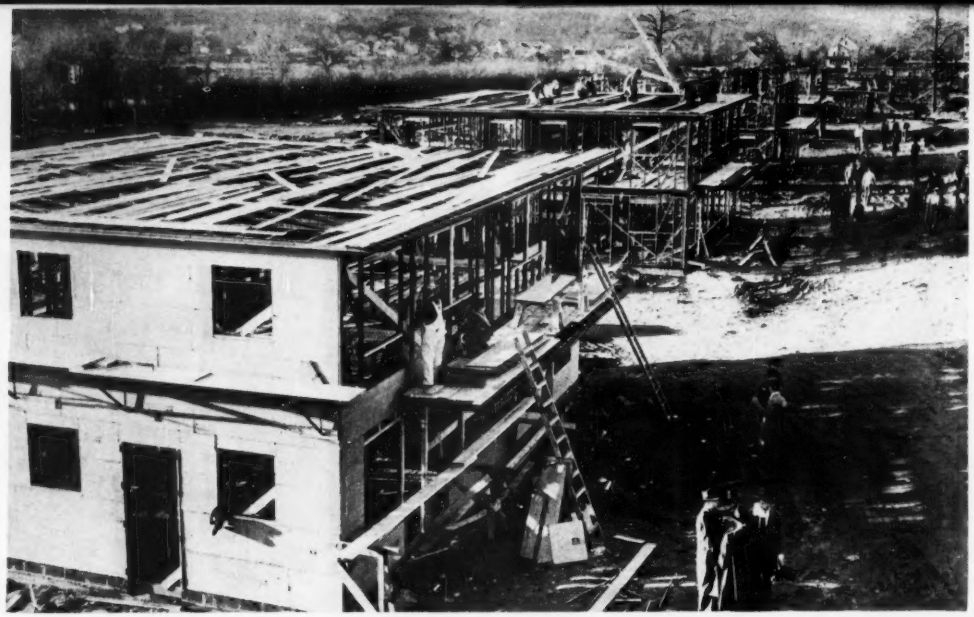
foundations and floor slabs, complete with sleeves for all plumbing and electrical conduits, then turn the job temporarily over to Builders' Steel. Here the assembly line begins. Through an intricate system of marking and scheduling, the right materials are delivered to the right spots on the project at the right time.

Keynote to the fast erection is specialization. The job is broken up into a series of individual operations, each of which is performed by a special crew moving from building to building. The first is securing the ground floor stud sections with ½-in. bolts previously embedded in the concrete foundations at 4- to 6-ft. centers. Sections are held in place with sheathing board bracers until fastened at the top with No. 14 cadmium plated, self-threading P.K. screws. Interior partitions are erected at the same time.

Next joists and second-floor stud sections are lowered into place by crane and fastened with screws. Diagonal bridging holds the joists rigid. Finally, ceiling beams are erected. Corrugated steel for second-floor concrete is placed and

6. Insulite plank nailed to studs . . .
Steel frame erection completed, carpenters fasten insulite plank with 8-penny nails. Pre-drawn lines on plank help workmen hit Stran-Steel nailing groove.





7. Specialization is key to speed . . .
Staggered construction schedule on these D-type 4-family units enables specialized crews to move from building to building performing specific operation. This system cut erection time considerably.

the job goes back to the general contractor.

Carpenters then nail on insulite plank with ordinary 8-penny nails. Nailing grooves on the Stran-Steel studs are formed by spot welding together two lightweight channel sections with curved webs, leaving a groove in the middle of the flange. Exterior wall finish is of red brick veneer and stucco, set to allow 1-in. clearance between inner brick and the insulite plank. Interior finish is of $\frac{7}{8}$-in. rock lath, applied by clip system, and plaster.

Douglas Orr, president of the American Institute of Architects, designed the apartments putting all bedrooms on the second floor and utilities on the main floor, eliminating need of a basement. B. M. Pettit is consultant for the housing authority on the job.

Construction Costs

Total bid on the 25-acre, 300-unit project is $2,753,618 including $382,000 for ground work. The accompanying table gives a cost breakdown for the individual buildings.

If the project continues on schedule the cut in construction time may enable the Housing Authority to realize $20,000 in occupancy earlier than originally contemplated.

Cost Breakdown for Housing Units

Type of Building	Estimated Cost	Cost per unit	Area in sq. ft.	Cost per sq. ft.	Cost per cu. ft.
A-12 family (all one bedroom units. Administrative office in one basement and heating plant in other	$73,760	$6,146.50	9,320	$7.92	$.79
B-6 family (three 2-bedroom units and three 3-bedroom units)	50,700	8,450	7,560	6.58	.658
C-6 family (all 2-bedroom units)	44,500	7,417	6,216	7.16	.716
D-4 family (all 2-bedroom units)	31,400	7,850	3,540	8.80	.88

8. The Brains behind project . . .
Left to right are ANTHONY FUSCO, of Fusco-Amatruda Co., general contractor on job; FRED COE, New Haven Housing Authority engineer; HUGH JONES, office of Douglas Orr, project architect; THOMAS AMATRUDA, president of Fusco-Amatruda; WILLIAM I. SULLIVAN, international representative, A. F. of L. Carpenters Union and JAMES DOLAN, president of Builders' Steel Framing Inc., Bridgeport.

Cited for Service

THOMAS J. WALSH

HE MIGHT HAVE BEEN a great baseball player, for Thomas J. Walsh caught for the Chicago Cubs in 1907 and was doing all right at it. However, his contractor father, Patrick T. Walsh, demanded that his young son quit playing around and get back to work, which in Walsh vocabulary, meant get back to construction. Where Tom might have ended up in baseball is speculation, of course, but his achievements in construction are well known. As Chairman of the Board of Walsh Construction Co., Davenport, Ia., New York and San Francisco, he is one of the country's biggest and most successful contractors.

Tom Walsh was born at Davenport, Ia., Feb. 28, 1886. After graduating from St. Mary's College at St. Mary's, Kan., in 1906 he went to work for Walsh Construction Co., which had been founded by his stone-cutter father in 1899. Construction was nothing new to the young lad, for he had worked many a school vacation for Father Patrick, and still recalls the tedious hours he spent as a pit man under the old railroad-type shovels.

As the company was primarily interested in railroads, Tom's early career was almost exclusively in this type of work. By 1911 he had merited a superintendent's rating, and was given charge of a big railroad job for the Big Four near Sharonville, Ohio. This was all shovel and team work. Upon the death of his father in 1916, Tom became president of the firm, a position he held until 1946, when he relinquished the presidential reins to William Durkin and stepped up to Chairman of the Board.

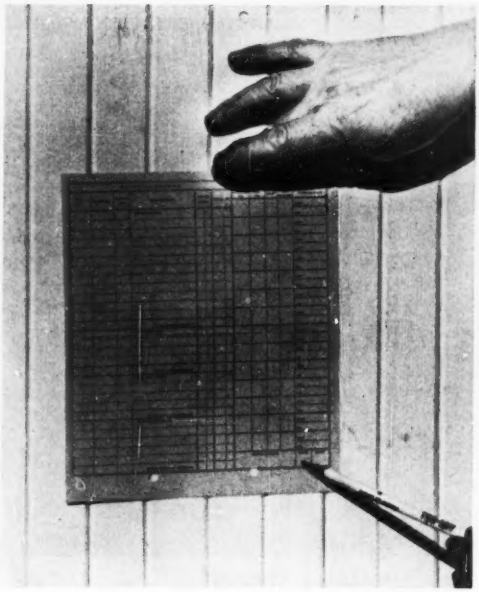
When Tom became president in 1916 the company was undergoing some big changes. His father had staked many of his old superintendents in partner corporations. Many of these companies had run their course, and Walsh was in the process of buying them out. At the same time the company began to branch out of railroad work, tackling general heavy, building and real estate development construction.

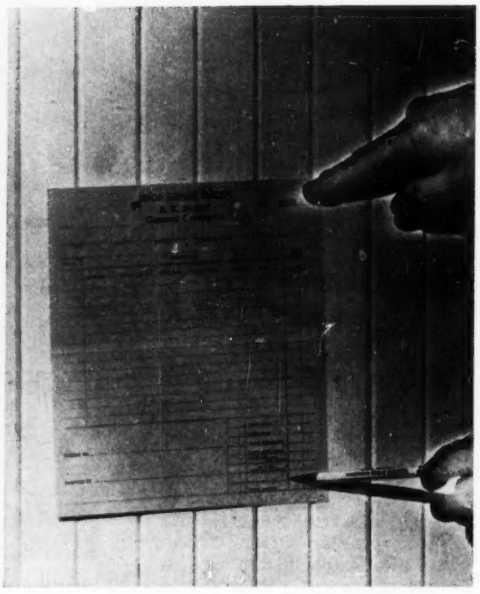
Young President Tom was really responsible for the diversification of Walsh Construction Co. activities, and he developed the firm into the strong national position it occupies today. They became tunnel specialists in addition to other interests, and drove many notable tunnels including the Queens Midtown Tunnel in New York, regarded as one of the toughest jobs in tunneling history. Currently, they are engaged in the Downsville Dam diversion tunnel for New York, a tunnel for Boston's water supply, the Squirrel Hill traffic tunnel in Pittsburgh, and a section of the Feather River hydro project in California.

Walsh has built railroads all over the United States, and has long been a favorite contractor for the New York Central. They elevated this road through Syracuse, built the Buffalo Terminal, four-tracked much of the line between New York and Albany, and were on the Castleton cutoff below Albany. Walsh was part of the combination on the first Grand Coulee Dam contract, and Tom stayed out there for two years as construction advisor on the high dam.

Walsh's impressive list of completed projects is too long to reproduce here. On it are such notable projects as Trinidad Army Base, Camp Edwards, Brooklyn Navy Yard drydocks, Geneva Steel Plant, B.&O.-N.Y.C. coal loading station at Toledo, Electronics Park at Syracuse, Hercules Powder Plant, Parlin, N. J., as well as 65 wartime ships built at Providence. Currently the company is working on Clark Hill Dam, Knolls Atomic Energy Plant (Schenectady) and the United Nations headquarters in New York.

Big, jovial Tom Walsh is more than popular in the construction fraternity—he is honored and respected as well. He believes in developing his own forces, in building up his organization from within, to carry out and pass on the ideals, experience and ability of his firm. His only son, Tom, Jr., who has worked up through the ranks to vice-president, is the third generation of the family in the company. Thomas J. Walsh has done a lot for construction, and the industry is proud of him.





HERE are both sides of job cards that simplify maintenance records for McKee, general contractor. Shop repair orders are made out for every servicing on every machine. When work is done in outlying shops, cards are sent to El Paso headquarters for filing after work is completed.

EQUIPMENT MAINTENANCE:

Organization Keeps 'Em Rolling

CONVERTED Fordson Handy Boom Tractor designed and built at El Paso shop. Chevrolet transmission operates Tulsa winch equipped with 100 ft. of 1/2-in. pre-formed wire rope.

By DAN NATIONS
Equipment Superintendent
Robert E. McKee, General Contractor, El Paso, Tex.

MAINTAINING more than 400 pieces of major equipment, spread out over three different states requires real organization. As equipment superintendent for Robert McKee, I find a complete unit job card file helpful in handling our repair work. We treat our equipment with the same care a trainer does his football players. Each unit is given regular check-ups or preventive maintenance service and running repairs at any one of five on-the-job shops, located in California, New Mexico, and Texas. All major overhauls are sent to the 8,000-sq.ft., 12-man headquarters shop in El Paso, from which substitute machinery is sent out into the line-up.

Head mechanics fill out job cards for every piece of equipment serviced in their outlying shops. As complete as a physical examination blank, the cards give a full description and serial number of serviced equipment, date and kind of service, description of

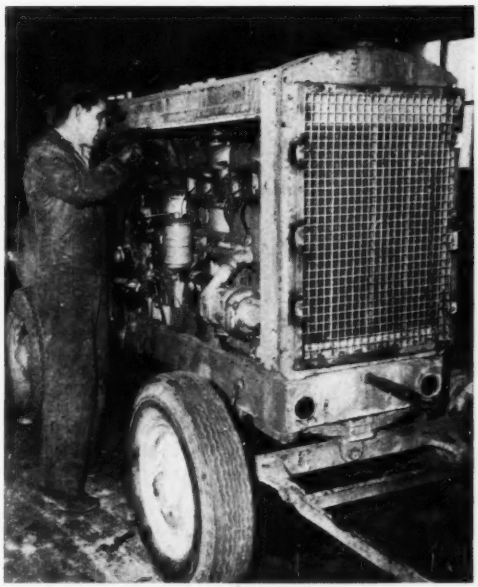
repair parts used, name of both mechanic and operator, time unit is in the shop, a material and labor breakdown, job name and number, and the work order requisition number. When work is finished completed card is sent to the central office where the information is posted in both a unit (or equipment) record and a job record.

Just as yardage statistics often tell much of the story on the gridiron, a study of these files, compiled with a bare minimum of red tape, reveals valuable information about both working conditions on each job and on equipment performance. Such studies have shown that on McKee jobs pre-formed wire rope lasts much longer on cranes, shovels, and draglines, than does the ordinary wire rope. Similar studies indicate that recaps where the cap is cooked on to the tire outlast those where the tire is cooked on to the cap. A check on 300 trucks and car units revealed that it is economically practical to limit units to two major overhauls before dropping them from the squad (either by direct sale or on a trade).

By a similar work card survey the company also established a maximum safety period between major overhauls. Draglines, shovels, and ¾-yd. cranes are given yearly major overhauls if operated steadily under average conditions. All trucks, cars and some major heavy equipment are overhauled by the motor or engine exchange system.

A good trainer doesn't let his players get out of shape in off seasons. By proper preventive maintenance and careful equipment storage both at on-the-job locations and at the El Paso warehouse, we have doubled the safe life expectancy of much of the machinery. A full report of equipment field storage is kept in the job card files.

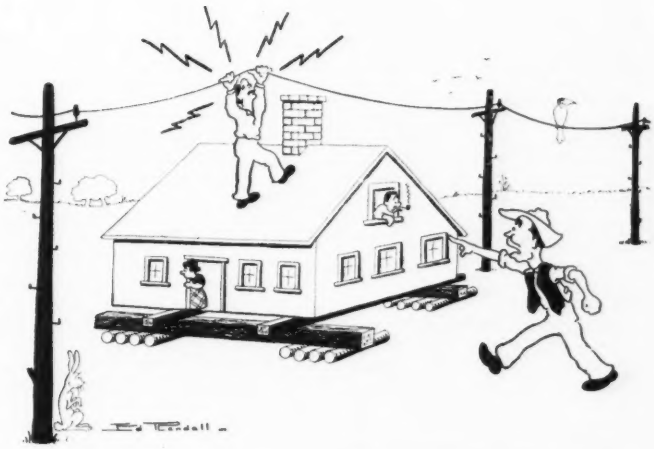
Contractors as well as coaches always need new plays or special equipment for almost every new job. Resourceful mechanics at the El Paso headquarters design and build much of the firm's special equipment from field suggestions. Typical of these is the winch-equipped boom tractor, pictured herewith. A Chevrolet transmission, installed at the tractor's power take-off, operates a Tulsa winch by means of a chain sprocket giving three speeds up and one down. Excellent for derrick work, this rig cost only $400 to be converted over from a Fordson tractor. If our repair department has anything to say about it, McKee Contractors won't field any cripples.



COMPRESSOR is given final check in headquarters shop before being sent out on one of jobs. All running repairs and PM work for major and minor equipment are done in on-the-job shops. Major overhauls are sent to headquarters in El Paso.

Spike Was Too Late!

OUR ROVING CORRESPONDENT, Spike Hennessey, was watching a house mover roll a structure through the city streets on a wet day. When a transmission line fouled the chimney, a worker scrambled up on the wet roof and tried to lift the wire with his *bare* hands. Spike yelled at him, but too late. He was electrocuted, as was also a helper who tried to free him. Moral of this story, based on an actual occurrence, is that management must foresee such obvious hazards as overhead transmission lines, and take the necessary steps in advance to avoid accidents.



TYPICAL of new developments in earth drills is this rig at Los Angeles sinking 494 holes 20-in. dia. at average rate of 416 ft. per day on Sears Roebuck foundation job.

Earth Augers Now Versatile Foundation Diggers

EARTH - BORING EQUIPMENT has been developed of late in southern California to such an extent that recently the boring outfit of a Los Angeles contractor was brought all the way from southern California to do a job in Elizabeth, N. J. On the New Jersey job the equipment bored holes for concrete foundation piers at an over-all cost, including time and round-trip transportation for equipment and crew, 25 percent less than bids made by contractors nearby. And, at that, it was a relatively small job.

The demand for power-driven augers and buckets with which to dig wells, holes for telephone poles, small septic tank excavations, etc., has been very heavy in southern California because of the great amount of building construction there on light soils. Large numbers of such rigs have been operating in the Los Angeles area alone and about 50 patents have been granted in recent years for this type of equipment.

One of the more prominent contractors using such rigs is George F. Casey of Los Angeles. He uses an outfit built (and patented) by a Los Angeles manufacturer, the California Welding & Blacksmith Shop, Inc. It was Casey's equipment that went east to do the New Jersey job.

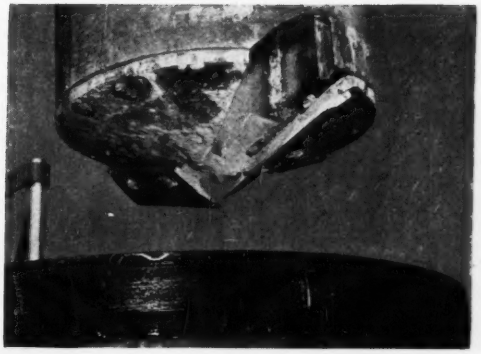
This particular boring machine was originally developed for digging cesspools and small septic tanks, but after the rig had been improved by new ideas from time to time the manufacturers found that the most profitable field was in digging holes for concrete piers. Out of a total of more than 200 outfits made by this manufacturer, 70 percent have worked on foundations requiring holes from 16- to 72-in. dia., with or without belled footings.

The boring machine is mounted on skids and is usually placed on a commercial truck chassis. Power is a gasoline engine driving a double-drum friction hoist. One of the drums raises and lowers a 30-ft. derrick hinged to the rear end of the rig, thus enabling the derrick to be swung down into a horizontal position extending over the cab of the truck while the machine is in transit.

The derrick is the support for a 20-ft. Kelly bar, which is a 3-in. square, solid steel shaft that operates in a vertical position. A yoke that slides along this shaft and can be attached firmly to it at any point fits into and is rotated by a horizontal drive gear of 32-in. inside diameter projecting beyond the rear end of the truck chassis.

The drive gear is rotated through

BUCKET ASSEMBLY about to be lowered through driving ring into hole. Bucket is driven by yoke, shown here near bottom of Kelly bar, which engages teeth in driving ring, transmitting torque to auger and bucket through Kelly bar.



CUTTER part of auger is dome-shaped plate carrying two removable cutting edges, hinged to slotted bucket (at far side). In cutting position, as shown here, auger plate swings tight against bottom of bucket, fastened by T-head bolt that can be released from top of bucket for dumping. Driving ring gear, which engages yoke on Kelly bar, is at bottom. This gear assembly is mounted on rear of truck.

FOR DUMPING, bucket is lifted clear of driving ring, swung into clear and T-head bolt is released, permitting auger plate to swing downward, thus releasing bucket contents.

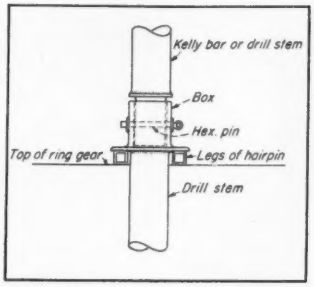
an independent friction clutch, giving optional control of the drive gear at all times. Buckets of any diameter that will pass through the 32-in. opening in the drive gear can thus be attached to the lower end of the Kelly bar and sunk down into the earth in the boring operation. Each time a bucket is filled, yoke, Kelly bar and bucket, as a unit, are brought up above the horizontal drive gear, swung out to one side and the bucket is emptied.

The buckets are fabricated from steel tubing, usually 3 ft. in length and 30 in. in diameter. For digging holes up to 6 ft.-dia. reaming blades are attached to the bucket. The position of these blades is controlled from the top of the Kelly bar, and they are always swung back out of the cutting position before being lifted through the drive gear.

The bottom of the bucket, made of a shallow dome-shaped plate, is held in place by a heavy hinge on one side and a locking device opposite the hinge. Two opposing trapezoidal slots are cut out of the bottom, and each slot carries a steel cutting edge bolted in place.

When a hole is started, the bucket is attached to the Kelly bar by a square sleeve joint fastened with a cross pin. The drive gear rotates the yoke and Kelly bar until the bucket is filled through the trapezoidal slots. Then the bucket is hoisted and emptied, the yoke is advanced up the Kelly bar and the process is repeated. Drill stems 20 ft. in length are added between Kelly bar and bucket as the hole deepens. After arrival on the job, the rig can be set up ready for drilling in about 15 min.; about 20 ft. per hr. is the average footage dug in hard clay with experienced operators.

The rig is designed for boring earth and is not adapted to ground



COUPLING and uncoupling of quick-detachable joints between 20-ft. sections of drill stem are done while lower string of stems is supported on hairpin thrust under joint flange and spanning ring gear.

that could not be dug with a pick. However, in holes whose diameter is large enough to permit a man to go through (usually 24 in.) an occasional boulder can be removed or a rock stratum, if not too thick, can be blasted. Where the material traversed will not stand up, casing can be driven. With a churn drill combination, layers of harder material can be drilled, blasted and bailed out with the bucket. The opening in the bottom of a 24-in. bucket will admit rocks up to about 7 in. in diameter.

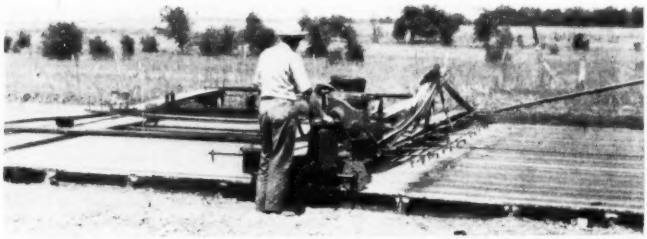
Where increased bearing area in the footing is desired a bell-shaped excavation at the bottom of the hole is formed by putting down a bucket carrying reaming blades. The angle of these blades can be varied to increase the radius of projection by manipulation of a lever at the surface. The material excavated in this belling operation is bailed up by the bucket in the usual way.

For holes more than 60 ft. deep a "rat hole" 2 ft. in diameter and 15 ft. deep alongside the drilling operation, provides convenient storage space into which to drop sections of the drill stem when the bucket is being brought up. With a convenient rat hole the bucket can be brought out of a 100-ft. hole (four joints to break) in 90 sec.

The speed of "make" and "break" on these joints is the result of experiment with pins of several types. The pin finally adopted is a 7-in. piece of $\frac{5}{8}$-in. hexagonal steel, flattened at one end, with a $\frac{1}{8}$-in. hole through the flattened part. A 14-gage wire is fastened through the hole. When the drill stems are fitted and pin holes are matched, the pin is inserted and the wire is taken around the box and wrapped around the opposite end of the pin. To release the joint, the wire is unwrapped and the pin pulled free.

The boring machine that Casey sent to the New Jersey job, put down 44 foundation pier holes of 30-in. dia. ranging in depth from $7\frac{1}{2}$ to $13\frac{1}{2}$ ft. and with spread footings or bell holes at the bottom 6 ft. dia. This work was completed in 120 hr. or 15 8-hr. working days with a two-man crew. The outfit included the boring rig, as described, and a pick-up truck for handling tools and supplies. The total costs on this job were $17.32 per ft. of hole. This included belled footings, as well as time and cost of the equipment and two-man crew on a transcontinental trip that took six days each way.

On another foundation job (Sears Roebuck & Co. warehouse in Los Angeles) 494 holes, 20 in. dia., were drilled to an average depth of 22 ft. On this job the machine averaged 416 ft. of hole per day, and the cost to the general contractor was 55c per ft. including the over-all moving and setting-up costs on the boring machine. No belling of footings was required.



WITH 21-NOZZLE SPRAY, curing compound is rapidly applied to newly laid concrete surface of pavement on U. S. Highway 70 in Oklahoma. Mounted on old piece of finishing equipment the 21 nozzles were spaced at close intervals, across the entire 22-ft. width of pavement and applied curing compound at uniform rate to obtain proper coverage. Contractor was Moran, Buckner & Lyles, of Muskogee, Okla.

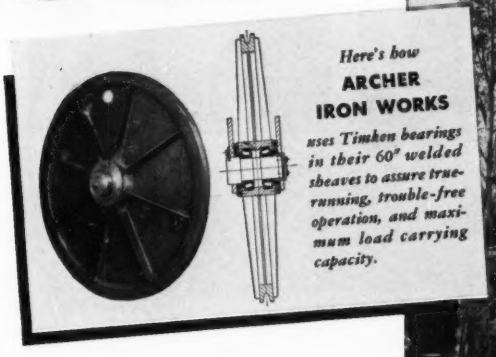
How TIMKEN® bearings help speed Baltimore water tunnel project

THIS elevator hoists material from a tunnel being dug to bring water to Baltimore, Md. To help keep construction moving smoothly, the elevator is equipped with four 60″ welded sheaves turning on Timken® tapered roller bearings.

Mounted on Timken bearings, sheaves operate freely and smoothly, with negligible friction and power loss. The tapered construction of Timken bearings carries both radial and thrust loads, keeping sheaves accurately positioned and true-running under all conditions. The line contact between the rolls and races gives tremendous load carrying capacity. Close fitting closures keep lubricant in for long service with minimum attention.

No matter what equipment you build or buy, you'll want all the advantages you get with Timken tapered roller bearings. Look for the trade-mark "Timken" on the bearings. The Timken Roller Bearing Company, Canton 6, Ohio. Cable address: "TIMROSCO".

This symbol on a product means its bearings are the best.



Here's how **ARCHER IRON WORKS** *uses Timken bearings in their 60″ welded sheaves to assure true-running, trouble-free operation, and maximum load carrying capacity.*

TIMKEN BEARING CAPACITY RATINGS INCREASED 25%.

Since Timken bearings were last re-rated some 15 years ago there has been such a further and constant improvement in quality that we are now able to announce a 25% increase in radial and thrust load carrying capacity. This may make possible the use of smaller bearings with savings in bearing cost, material cost and weight. Engineers will be able to utilize the advantages of Timken bearings in more applications than in the past.

A new Timken Engineering Journal, now in preparation, will give you complete capacity rating tabulations. For further assistance, write us today.

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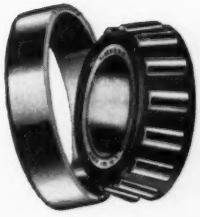
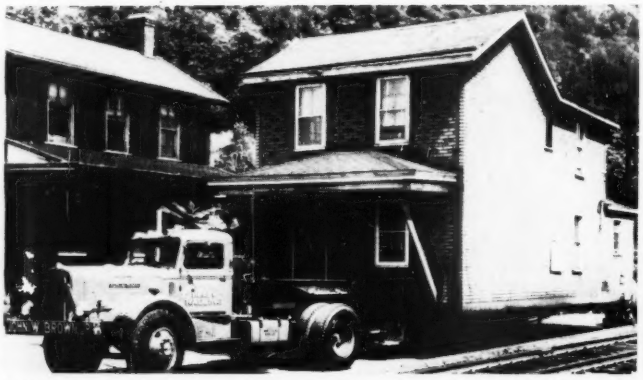
TAPERED ROLLER BEARINGS



NOT JUST A BALL ○ NOT JUST A ROLLER ▭ THE TIMKEN TAPERED ROLLER ▭ BEARING TAKES RADIAL ◫ AND THRUST →◫← LOADS OR ANY COMBINATION

JOB oddities

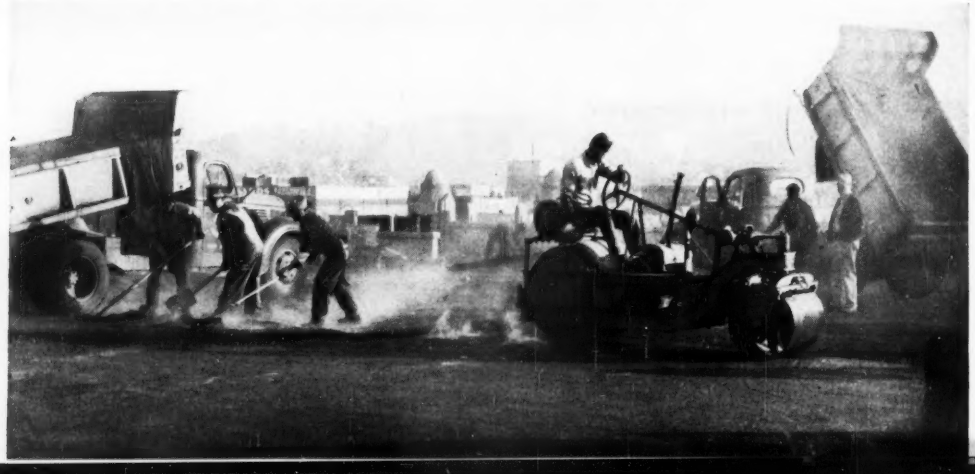
THEY MAY NOT have done it this way in Holland but a 114-ft. glued laminated spar for this replica of an old Dutch windmill in San Francisco's Golden Gate Park was recently hoisted into place by combination of gin poles and truck crane. This spar replaces original, erected in 1905, which was lost in wind storm.



MOVED INTACT by low-slung trailer and Autocar diesel truck of John W. Brown, Jr., Pittsburgh heavy haulage contractor, is this 6-room, 55,000-lb. house of Rev. James Friday of West Elizabeth, Pa.

LIGHTWEIGHT MAGNESIUM WHEELBARROW of Dow metal, weighing only 15 lb., is exhibited at National Hardware Show, New York City. Miss Joyce Lackmann easily handles load with one arm.—Acme Photo

THERE'S NOTHING UNUSUAL about this paving job (below) except that it's six stories above Spokane, Wash., streets. Roof parking area on top of City Ramp Garage, built in 1928, was originally composition over concrete which required replacement and was high in maintenance cost. Here Inland Asphalt Co. lays 6-in. top expected to give best service to 90-car area.



"ATLAS MORTAR CEMENT has proved entirely satisfactory in every way. The masons like it. It not only carries sand well but is workable under the trowel, and we can put all our joints just where we want them. None of the joints show shrinkage marks."
—Frank Crawford, Enid, Oklahoma

From all over the country, similar reports come in attesting to the advantages of Atlas Mortar Cement. Contractors and masons agree that it rates high—not just in some essentials, but in all desirable characteristics.

They like the smooth, even way Atlas Mortar Cement handles, spreads and trowels. Its excellent plasticity helps them to produce a fast, workmanlike job.

Also, Atlas Mortar Cement rates high in yield, in water retention, durability, color, strength, and low volume change. It complies with Federal and ASTM specifications for masonry cement and is backed by years of testing and research.

Send for descriptive circular. Write to Universal Atlas Cement Company (United States Steel Corporation Subsidiary), Chrysler Bldg., New York 17, N. Y.

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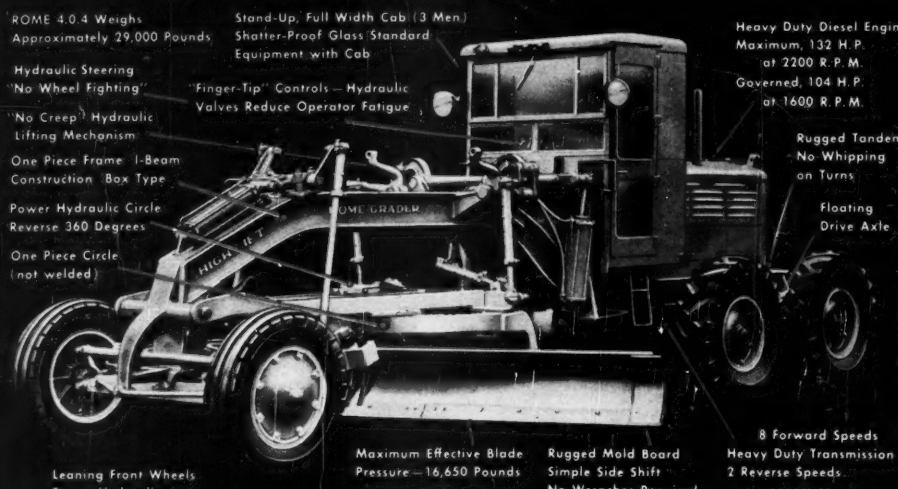
The Bigger the Job, the Bigger the Savings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Hydraulic Steering "No Wheel Fighting"
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ROME 4·0·4 responds to the operator's every wish, even under the heaviest of conditions, at a finger's touch. Fast, precise operation means more work accomplished with a minimum of effort.

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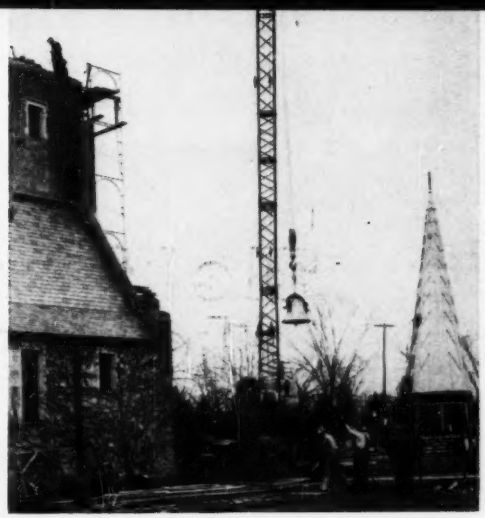
1. First steeple base . . .

Octagonal steel base for 85-ft. steeple is lowered into position on top of 125-ft. church tower in Toledo Ohio. Bell on ground behind workmen goes up next.



2. Then bell . . .

Removed from its holder which is already in place, 1-ton bell for steeple is hoisted to top of tower.

Pre-Assembled Steeple for Toledo Church

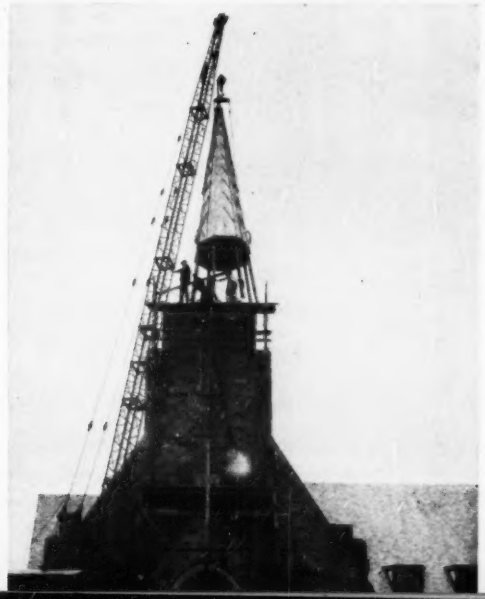
TRUCK CRANES can't come any closer to going to church than one did in Toledo, Ohio recently when crowning the Hope Evangelical Lutheran Church with an 85-ft. 6-ton steeple. Assembled on the ground by H. J. Spieker Co., the huge octagonal spire was hoisted to the top of a 125-ft. tower in 10 min. A steel I-section base and a 1-ton bell preceded the steeple to the church tower. During its ascent a four-wire sling, connected to the ends of an equalizing yoke, secured the steeple. On the ground men helped guide it with lines from two of the steeple legs. After being bolted to its base, covering material was installed on bottom of spire. Structure is finished with overlayer of lead on copper.

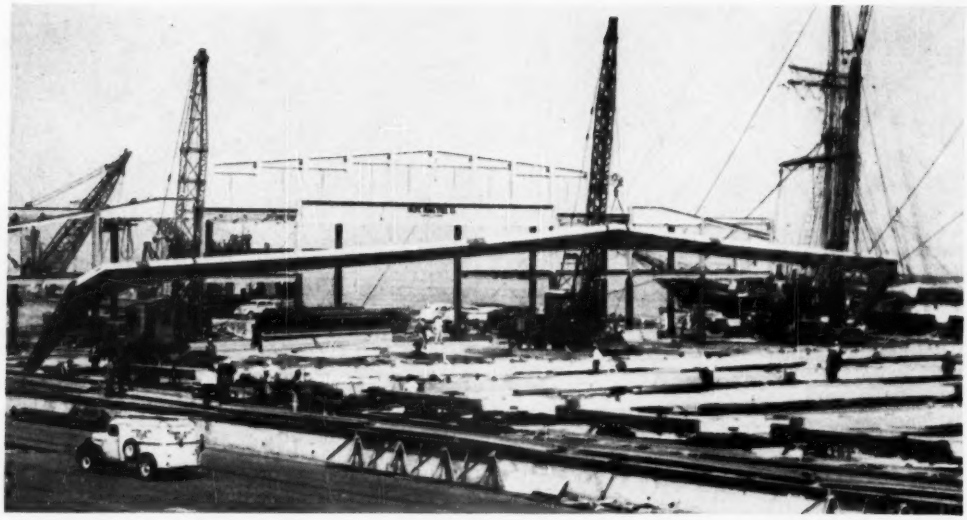
3. Then steeple . . .

Secured by four lines from equalizing yoke (below), 6-ton steeple is lifted to tower by truck crane. Men on ground guide structure with lines from steeple legs.

4. Finishing Touches . . .

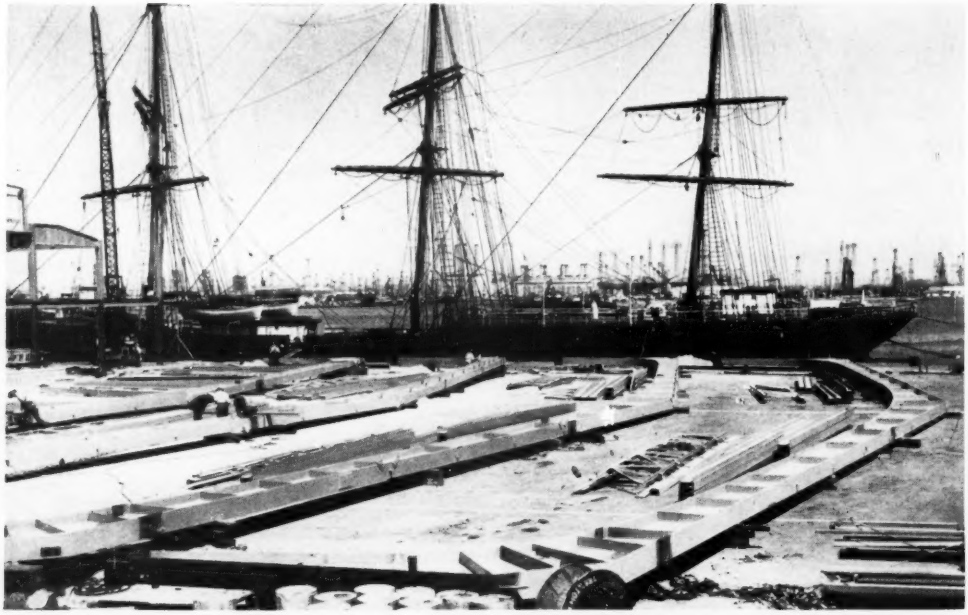
Spire is placed (below) and bolted by men on tower. Only 10 min. elapsed from time steeple left ground until it was secured. Covering was finished after installation.



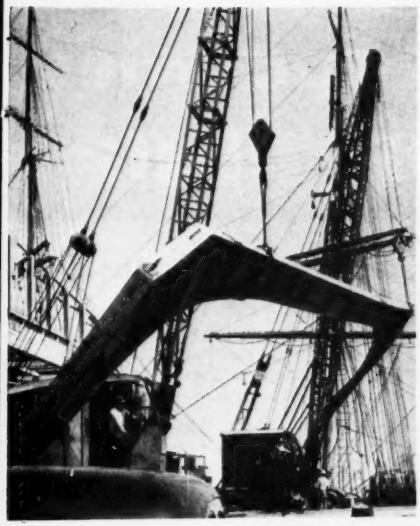


Good teamwork by three 20-ton cranes on Long Beach, Calif. transit shed speeds . . .

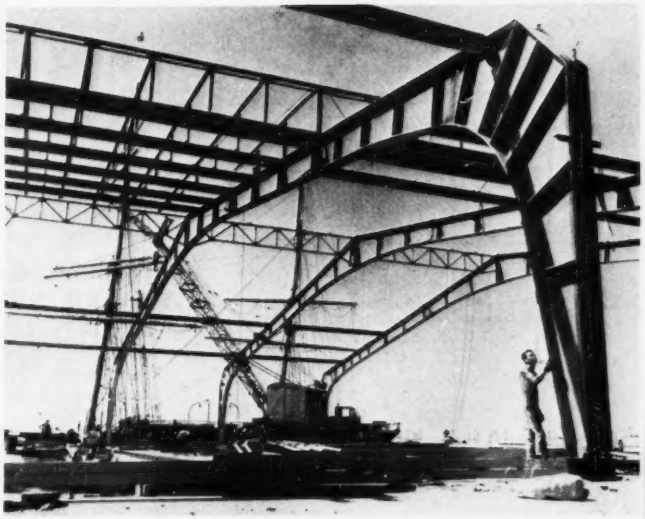
Erection of Long-Span Rigid Frames



TRUCKED TO JOB in five sections all-welded 200-ft. frames are assembled and laid in final position for erection.



BENDING, evident in this first frame to be raised, was overcome shortly by better coordination of truck cranes as job went on.



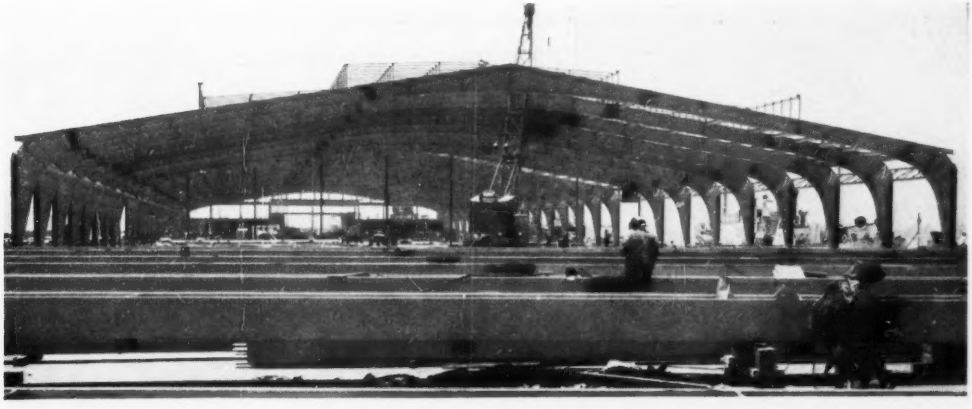
WHEN NOT ERECTING FRAMES, crane helps place connecting members. Best progress for 32-man crew was eight frames including connecting I-beams and trusses erected on 6-hr. shift.

TEAMWORK in the operation of three motor cranes paid off for H. E. Robinson, West Coast Contractor, in erecting 33 all-welded rigid frames weighing 42 tons each. One of the 20-ton capacity cranes (one Bay City and two Koehring) was hitched to the 200-ft.-long span at the midpoint, and the other two near the outside. By good coordination of the three machines, the job was completed in fast time with very little difficulty.

Best progress for the 32-man crew was eight frames erected in a 6-hr. shift. This included raising the frames and attaching connecting I-beams and trusses. Minimum for erecting one frame was 18 min. from the time the slings were placed around the frame until the time they were loosened.

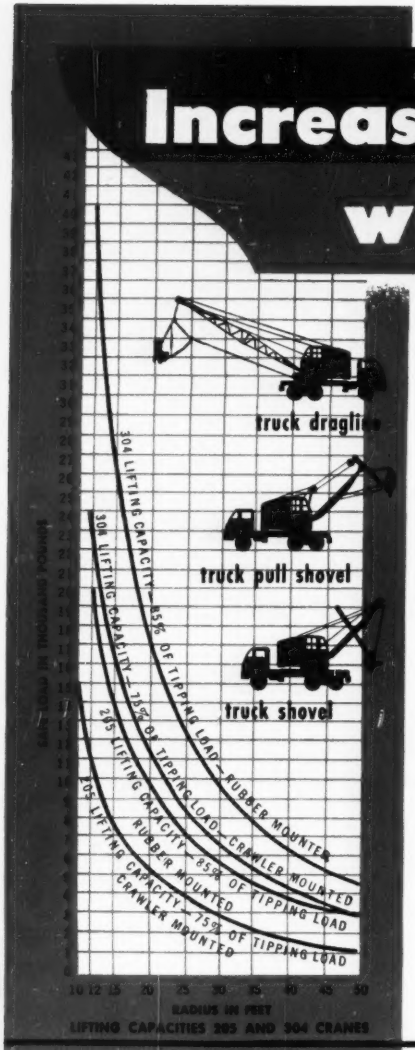
The 42-ton spans were trucked to the job in five sections with all welding completed except for joining the sections together. At the job they were laid in position and 70 percent of the final welding was done before erection, thus eliminating most of the overhead welding.

The frames are part of what will be the world's largest clear span transit shed, now being erected for the Port of Long Beach, Calif. The new 1,152x200-ft. shed will permit faster loading and unloading of ships. E. J. Amar is port manager of the Port of Long Beach, and the engineering work was under the general supervision of R. R. Shoemaker, chief harbor engineer. Steel fabrication was done by Pacific Iron & Steel Co.



RIGID FRAMES rise to form world's largest clear-span transit shed. Workmen in foreground weld 42-ton spans before erection, eliminating most of overhead welding.

Increase Lift Capacities with KOEHRING


truck dragline
truck pull shovel
truck shovel
304 LIFTING CAPACITY—85% OF TIPPING LOAD—RUBBER MOUNTED
304 LIFTING CAPACITY—85% OF TIPPING LOAD—CRAWLER MOUNTED
205 LIFTING CAPACITY—85% OF TIPPING LOAD RUBBER MOUNTED
205 LIFTING CAPACITY—75% OF TIPPING LOAD CRAWLER MOUNTED
10 12 15 20 25 30 35 40 45 50
RADIUS IN FEET
LIFTING CAPACITIES 205 AND 304 CRANES

YOU ALSO GET MORE BOOM LENGTH ...FASTER SPEEDS ON RUBBER

Wherever you have heavy lifting work requiring frequent moves on location, or job-to-job, it pays to use Koehring rubber-tired Truck Cranes. First, compare the increase you get in lifting capacities:

Koehring 304 Truck Crane safely lifts up to 40,000 lbs. . . . 8½ tons more than crawler rating. The smaller, heavy-duty 205 Truck Crane, with its 20,000 lb. lift on rubber, also increases load capacity by about half.

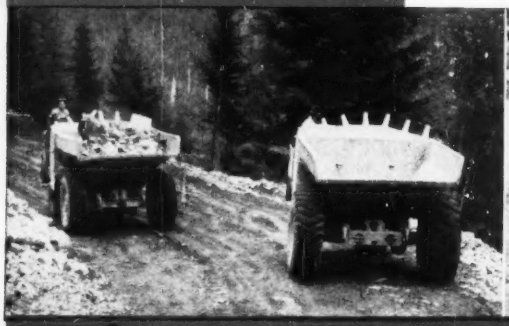
INCREASES WORK RANGE

Extra stability of truck crane mounting also increases work range . . . boom length on the Koehring 205 Truck Crane is stepped up from 50 to 85' . . . and reach on the 304 is increased from 70 to 110' maximum. Koehring's pendant boom suspension simplifies changing boom lengths, cuts reeving time, saves boom suspension cable.

TURN TRAVEL TIME INTO WORK TIME

These mobile Truck Cranes roll along at traffic speeds of 30 to 35 m.p.h. . . . get to job fast, start work sooner. No waiting for trailer . . . no planking. Hinged booms fold back for ample travel clearance . . . save more time every move.

Figure what these three big gains in extra capacity . . . extra reach . . . and extra speed can mean on your jobs! Remember, too . . . both the truck-mounted 304 and 205 are fully convertible from lift crane to Koehring shovel, pull shovel, dragline, clamshell or pile driver, extending the speed, mobility and economies to all of your materials-handling jobs. Also available on cruiser mounting. Other Koehring sizes: big 605 and 1005.



DUMPTORS® with their 6-yard rock body . . . 1-second gravity dump . . . constant-mesh transmission and 2-speed travel forward and reverse, give you fast, no-turn shuttle haul. Result: more trips per hour . . . more yards per hour on rough, off-road hauls.

KOEHRING heavy-duty shovels cut excavating costs. Compact, accessible machinery arrangement of 1½-yard 605 illustrated lowers maintenance costs, increases work-time. Other Koehring sizes: ¾-yard 205, ¾-yard 304 and big 2½-yard 1005.

up to 50% TRUCK CRANES

HEAVY-DUTY **304**

Ideal on heavy lifting work where travel time is an important percentage of job duration. With Koehring 304 Truck Crane, operator has full visibility up, down, left or right . . . controls are safe, sure . . . completely responsive. Big, heavy-duty clutch . . . large brake surface . . . reserve strength, beyond rated lift capacities, assure accurate, safe control.

HEAVY-DUTY **205**

In addition to its extra margin of heavy-duty strength, the Koehring 205 Truck Crane has many *plus* features: independent boom hoist . . . self-adjusting main clutches . . . spring-loaded, boom-hoist brake, which holds automatically . . . clutch throw-out boom limit stops . . . telescopic boom-limit stops. . . . power-boom lowering device. These are standard equipment on all Koehring Truck Cranes . . . for safe, versatile operation.

KOEHRING HEAVY DUTY

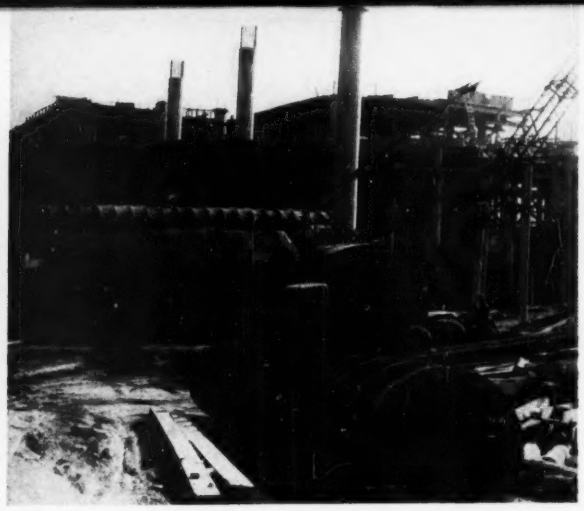
ASK YOUR KOEHRING DISTRIBUTORS ABOUT SAVINGS IN TIME AND MONEY ON YOUR WORK.

K902

KOEHRING Company, Milwaukee 10, Wisconsin

Subsidiaries: JOHNSON • PARSONS • KWIK-MIX

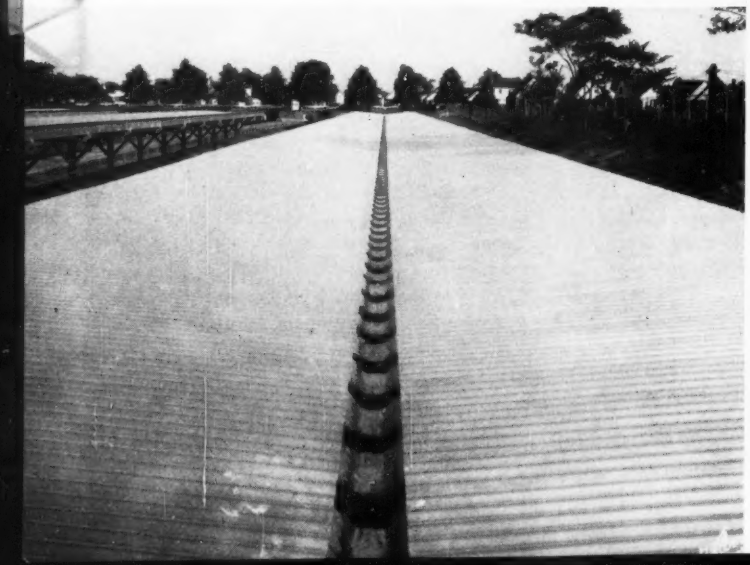
HOW ...they did it



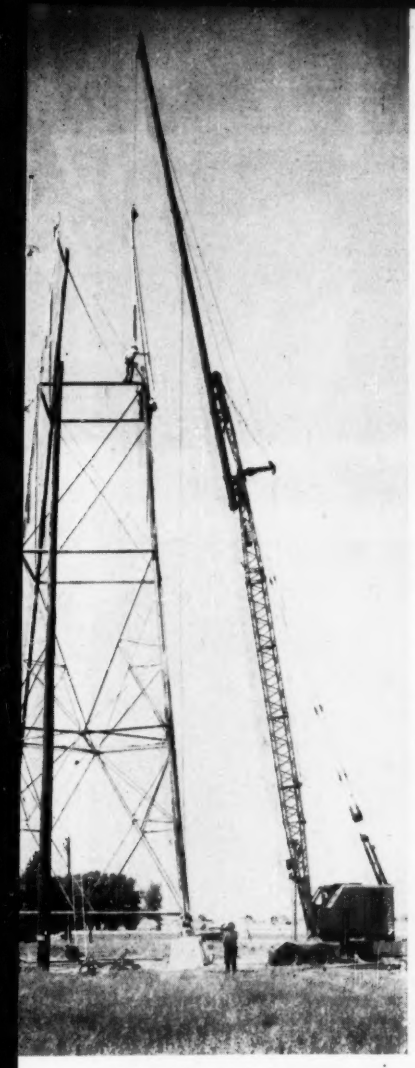
REUSABLE CIRCULAR FORMS were designed by James I. Barnes Construction Co., Santa Monica, Calif., to cast columns for a four-level grade separation in Los Angeles, Calif., at junction of Hollywood, Santa Ana, Harbor and Arroyo Seco freeways. Forms are built of 2-in. lagging backed up by wooden hoops and are in half-circle sections. After being used, they are cleaned, moistened to make them tight and oiled. Until ready for next use, they are covered with tarpaulins to prevent drying out.

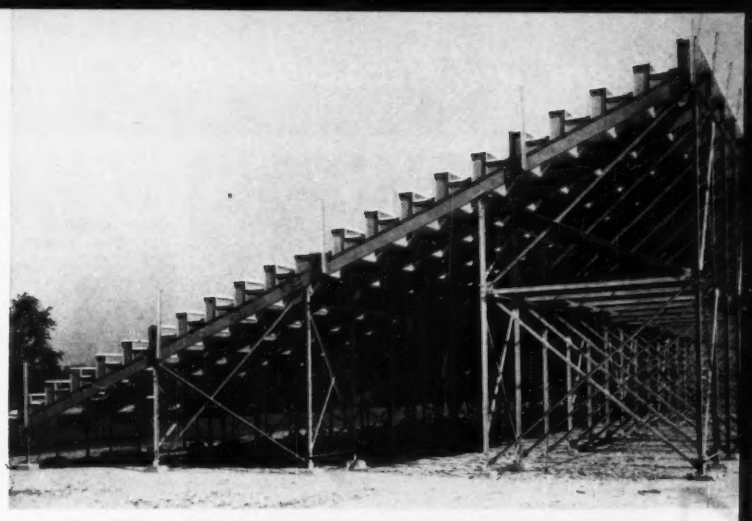
AT GARRISON DAM, huge Corps of Engineers project on Missouri River 70 mi. above Bismarck, N. D., push-tractors are often doubled up for fast and full loading of tough material. This bumper extension on rear of HD19 tractor of Garrison Builders Inc., contractors on Stage I embankment, lets second pusher make quick, safe contact to save valuable seconds on 15-million yd. job.

SHALLOW-DRAFT SKIFF powered by motor equipped with airplane propeller was used by Diamond Alkali Co., Houston, Texas, in connection with laying 8-in. flexible joint cast-iron brine pipeline across old lake bed which contained only 1 ft. of water above its 12-ft. depth of mud.

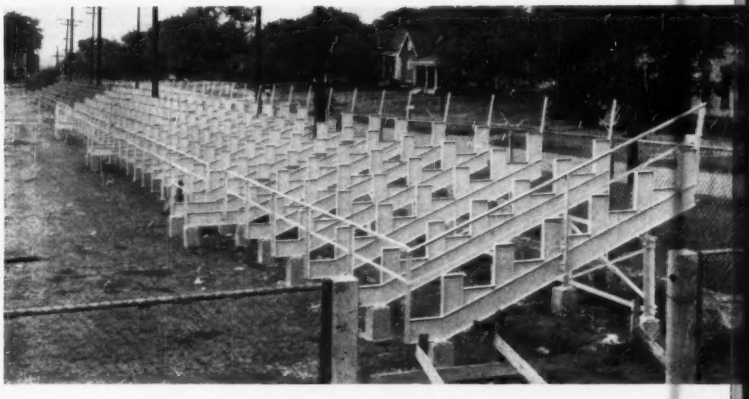


← FOR BUILT-IN BOX-TYPE GUTTERS, embossed 0.004-in. thick aluminum is used on railroad passenger station at Belmont Park race track, Long Island, N. Y. Corrugated Reynolds aluminum in sheets 8 ft. long, 35 in. wide and 0.032 in. thick was used for built-up roofing on ten canopies at station. Use of embossed aluminum built-up roofing eliminates soldered seams or expansion joints required in conventional box-type gutters. Construction involves wood framework, one layer of asphalt-saturated felt and two plies of 0.004-in. embossed aluminum hot-mopped into asphalt felt.





LOW-COST GRANDSTAND CONSTRUCTION at Polytechnic Institute, Cookeville, Tenn. (above), and Cohn High School, Nashville, Tenn. (below), by Kerrigan Iron Works, Inc., was made possible by use of Jones & Laughlin lightweight Junior hot-rolled steel beams in framework of stringers and walkway seat brackets. One stringer 10 in. deep and 16 ft. long weighs less than 150 lb. and can carry safely uniformly distributed load of 3 tons. Junior beams are reported to be now available at cost comparable to that of wood construction.

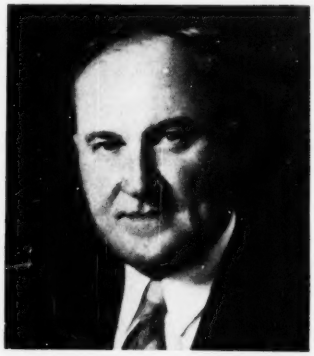


STAR-KNOCKER BOOM is rigged up on Bay City 180-T66 truck crane by adding 70-ft. wood pole to standard 65-ft. boom and 15-ft. jib for erection of new radio tower for station KOA in Denver. Weicker Transfer & Storage Co., Denver, owner of crane, came across with idea for long boom to handle first four sections of tower. Job was completed with customary basket gin pole.

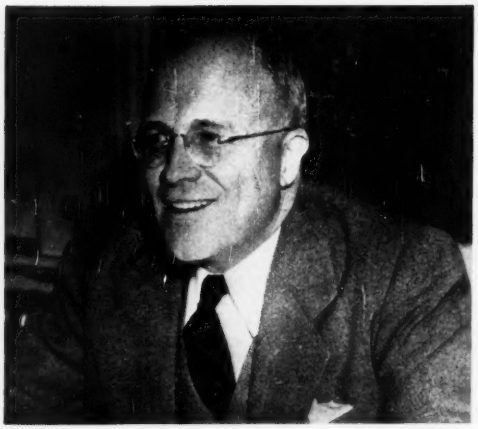
UNDERWATER PIPELINE CROSSING of Houston (Texas) ship channel by portion of 17-mi. long brine line of Diamond Alkali Co. involved jointing 1,500-ft. length of 8-in. flexible-joint cast-iron pipe on shore, inserting cable through it and pulling assembled line across channel, as illustrated.

Present and Accounted For···A PAGE OF PERSONALITIES

FOR ONCE a contractor gets in on groundbreaking ceremonies for his own job. Here DEAN SKINNER, of Cage & Skinner Construction Co., San Antonio, Texas, wields shovel as Galveston District Engineer COL. B. L. ROBINSON looks on at start of work on Garza-Little Elm Dam on $26,000,000 reservoir project in Texas.—U. S. Corps of Engineers Photo



NEW CHAIRMAN OF THE BOARD OF GOVERNORS of Building Trades Employers' Association, New York, is PETER W. ELLER, vice-chairman of board of Thompson-Starrett Co., Inc. Mr. Eller succeeds Christian G. Norman.



J. BURCH McMORRAN has been promoted to post of chief engineer, New York State Department of Public Works. He entered state service in 1921 and was recently district engineer in charge of department's office in Rochester, N. Y.

WINNER OF CONSTRUCTION ENGINEERING PRIZE of American Society of Civil Engineers is C. GLENN CAPPEL (below) of engineering and contracting firm of W. Horace Williams Co., New Orleans, La. He received his award at the annual meeting of the society Jan. 19 for his paper, "Steel H-Piles and Pipe Bents Support Deep-Water Drilling Platform."

FORTY YEARS OF CONTINUOUS SERVICE with the Virginia Department of Highways was recently completed by C. S. MULLEN (below), chief engineer. Mr. Mullen entered the state service as a project engineer in 1908 and after appointment as a district engineer in 1915, he served as acting highway commissioner in 1923 and became chief engineer in 1924.

NEVADA CHAPTER, Associated General Contractors of America, has appointed EDWARD L. PINE (below), secretary-manager. During World War II, he was a major in Army's Corps of Engineers. He is a civil engineering graduate of University of Nevada.

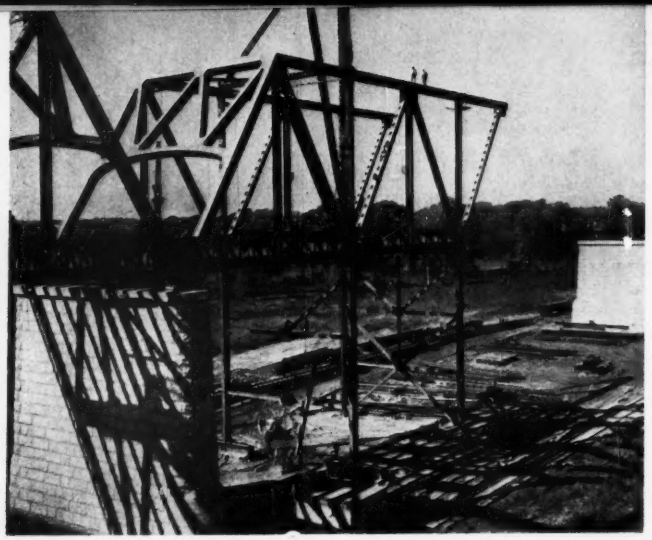
DIGGING IN *or* DIGGING OUT

You'll Dig Better with TRAXCAVATORS!

YOU have never seen anything like TRAXCAVATORS for digging in tough soils or digging out heavy debris. Their direct digging action gets big full bucket loads every time. They make yardage volume go up and handling costs come down.

TRAXCAVATORS are big, powerful tractor-excavators powered by famous sure-footed "Caterpillar" track-type tractors. They are contractors' most versatile tools. They dig, grade, load, carry, haul, lift, spread and bulldoze — and they do it cheaper and faster than any other machines of comparable size and capacity.

There's a size of TRAXCAVATOR for every job and purpose . . . with bucket capacities ranging from ½ to 4 cubic yards. For detailed information on how TRAXCAVATORS can help you — see your friendly TRACKSON "Caterpillar" dealer or write to the TRACKSON COMPANY, Dept. CM-19, Milwaukee 1, Wisconsin.

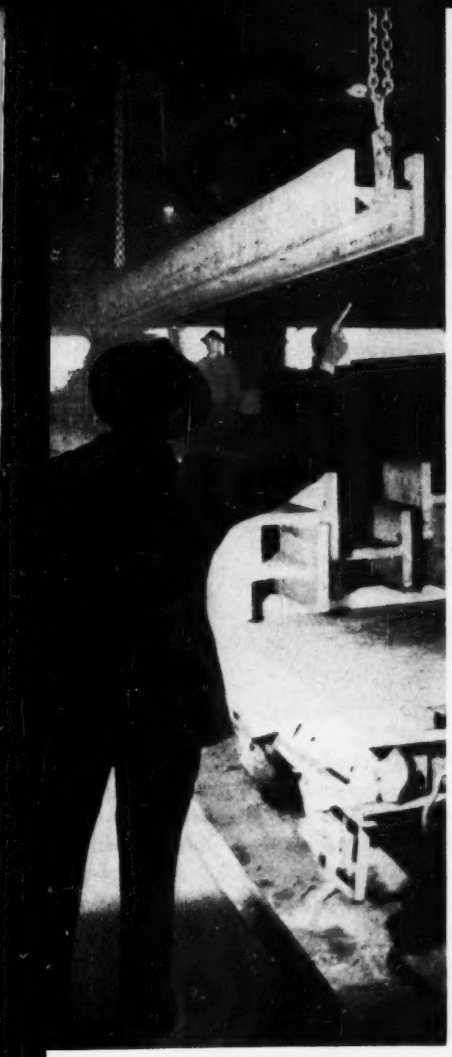


CONSTRUCTION CONTINUES on Memphis, Tenn., highway bridge as first temporary steel erection bent is dismantled, allowing Arkansas approach superstructure to rest on second bent. Span between piers 6 and 7, shown here, is 341 ft. and bridges part of 1,000-ft. Arkansas flood channel. Third to cross Mississippi River at Memphis, this bridge is being built jointly by Tennessee and Arkansa Highway Departments. Harris Structural Steel Co., New York, is setting steel on piers completed by Merritt-Chapman & Scott Corp.—U. S. Corps of Engineers Photo

WITH MODERN CONSTRUCTION EQUIPMENT, in form of Bucyrus-Erie truck-crane, huge Christmas tree 90-ft. tall is set in place in Rockefeller Plaza, New York City.—Wide World Photo

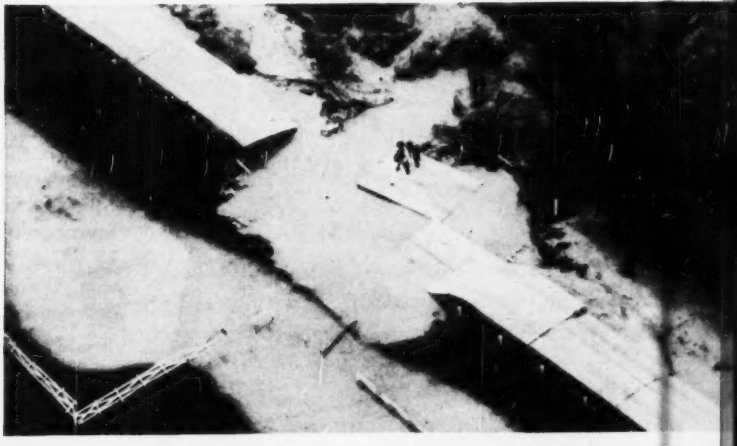
ALUMINUM ALLOY BASCULE BRIDGE, claimed to be first of its type in England, is placed in service between Hudson and Hendon docks at Sunderland. Each of leaves of lightweight structure is about 90 ft. long and weighs 54 tons.— British Combine Photo

GOLD IS WHERE YOU FIND IT, but in this case (below) it is 30 ft. under 12 million yards of overburden. Natomas Co., of Battle Mountain, Nevada, is starting huge job of removing overburden with Caterpillar D8 and No. 80 scraper unit. Dredges will take over when scrapers are finished.



FIRST STRUCTURAL STEEL MEMBERS for framework of United Nations secretariat building in New York City are loaded for shipment at Homestead, Pa., works of Carnegie-Illinois Steel Corp.—Wide World Photo

EXCAVATION for United Nations Headquarters along East River in New York City nears finish as Slattery Contracting Co. cleans up last of 145,000-cu-yd. job with four shovels and truck crane.—Mal Gurian Photo



WASHED OUT BY FLOODS in Alabama Nov. 30 is this section of highway between Montgomery and Selma. Whole section of pavement was carried to side of road.—Wide World Photo

→

ARGONNE ATOMIC LABORATORY of U. S. Atomic Energy Commission begins to take shape near Chicago at site where Quonset-housed project of 33 buildings occupies 8 acres of farm land. Laboratory will be devoted primarily to research and development of peacetime uses of atomic energy.—Wide World Photo

2 "C" TOURNAPULLS for KENT

These high-speed, electric-control rigs helped finish road job at Laurelville, Ohio ... drove to Renrock, handled 10,000 yds. shale on Route 76 bridge approach ... then handled entire 70,463-yard relocation on McConnelsville-Caldwell Rte. 78.

KENT BROTHERS COMPANY, Columbus, Ohio, got their '48 dirtmoving season off to a fast start with two LeTourneau 150 h.p. electric-control C Tournapulls. First, the high-speed, rubber-tired 13-yd. rigs helped clean up a road job at Laurelville, Ohio . . . then drove 84 miles to their next assignment at Renrock.

"Sweet machines to move"

"We made the 84 miles in 5 hours, including a stop for lunch", commented E. S. Evans, grade foreman and master mechanic . . . "They're sweet machines to move!" Here's what he had to say

Because all Scraper operations, as well as positive power steer, are handled by finger-tip electric controls, operators found it easy to do a better job with C Tournapulls.

Send for Complete Facts

To: R. G. LeTOURNEAU, Inc., PEORIA, ILL. Please send information on "C" TOURNAPULL:

☐ Specifications ☐ Price ☐ Delivery ☐ Would like job analysis on present operations

NAME.....TITLE.....

COMPANY.....TYPE OF BUSINESS.....

STREET.....CITY, STATE.....

Would also like information on ☐ 7-yard "D" ROADSTER ☐ Big 30-yard "B" TOURNAPULL

handle three road jobs BROTHERS COMPANY

Kent's Tournapulls picked up heaped loads fast . . . accelerated fast to 17.3 m.p.h. Fast loading, acceleration and hauling cut down cycle time, increase hourly yardage.

about their performance on the 10,000-yard Renrock bridge approach . . . "These new C's look to me like the best pull-scraper combination I've ever seen."

Next, on relocation of Route 78 (illustrated), between McConnelsville and Caldwell, Ohio, Kent's hustling Tournapulls handled entire grading operation . . . moved 70,463 yards of sandy loam, clay and soapstone shale over average 2,000' hauls.

"Incomparable" says Owner

At the end of their busy season, Kent Brothers' foreman reported that wet weather never shut down their rubber-tired Tournapulls . . . they kept working as long as it was possible to compact the fill. "On our jobs, the C's are incomparable", said Paul F. Kent, owner.

This ability to deliver steady production . . . cut weather delays . . . travel from job to job fast, can mean a busier, more profitable dirtmoving season for you, too. And . . . these "C's" earn extra profits during off-season, stockpiling coal for utilities, steel mills, etc. For complete facts on C Tournapull performance, prices and delivery, see your local LeTourneau Distributor . . . call him NOW.

McConnelsville-Caldwell road relocation was third major job on busy schedule for Kent Brothers' Tournapulls. They handled entire 70,463 yards . . . kept production on schedule.

Tournapull-Trademark Reg. U. S. Pat. Off. R14T

LETOURNEAU PEORIA, ILLINOIS HIGH-SPEED RUBBER-TIRED TOURNAPULLS

MORE YARDS PER HOUR WITH RUBBER-TIRED POWER

Trains Operated Without Interference as . . .

Milli-Second Detonation Blasts Cliff Close to Busy Railroad Track

U. S. ROUTE 22 is being widened, rebuilt or relocated through much of Pennsylvania. One of the toughest jobs on the whole project is where the highway and the double-track Williamsport line of the Pennsylvania R.R. share a narrow bench along the Susquehanna River on a sweeping curve around a jutting shoulder of Peters Mountain near Speeceville. Here 500,000 cu.-yd. of rock in almost vertical cliffs had to be shot down to make way for track relocation without interference with train traffic. In some places the rock face was only 6 ft. from nearest rail, and at one spot the cliff overhung the track.

Such a setup could be rugged going for any contractor tackling the job. But Central Pennsylvania Quarry, Stripping & Construction Co., Hazleton, Pa., contractor on this section, worked out a blasting scheme with Atlas Powder Co. engineers that made the rock lie

←

LOOKS LIKE a formidable job, blasting out this rocky cliff close to railroad tracks, but contractor combined milli-second detonation with reverse hole loading and got by without blocking train traffic. Shovel is starting first bench at top of slope.

SYSTEM OF LOADING and shooting, with zero delay caps back of center of bench, piles blasted rock up in heap without flying for easy loading out with shovels.

down and roll over and stay away from the tracks—and without loading the holes light.

The blasting procedure was simple. They used Atlas Rockmaster electric caps with milli-second delays, which gave maximum fragmentation with a minimum of fly rock. But the main control was in arrangement of the delays. Instead of following usual custom of charging the outside holes with instantaneous caps and progressively increasing the delay timing toward the back holes, the contractor fired the holes almost in reverse order.

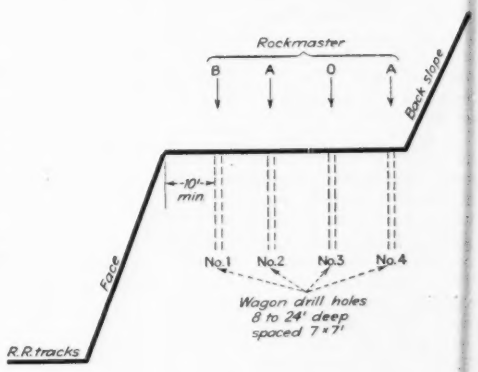
Primers with instantaneous caps were loaded in the second row of holes from the back, then A delays (corresponding to No. 1 delays in conventional caps) were loaded into the back row and the next row toward the front. The outside row, nearest the tracks, was charged with the slowest delay of the series, Rockmaster B caps.

Excavating Method

Excavation was by benching method, with blast holes being sunk with wagon drills 8 to 24 ft. (one 18 ft.) deep depending on slope of the face, on a 7x7-ft. pattern. The outside row, however, was always kept at least 10 ft. from the outer face or top of slope.

Upon being fired, the O delay row acted as cut holes for the blast, lifting the rock and making way for expansion into that area from both sides. The heavier burden on the outside row, which was fired last,

REVERSE LOADING, with instantaneous caps back from center and slowest caps on outside row, backed up by wide burden, keeps blasted rock off railroad track. Zero delays in center act as cut shot, and fast millisecond detonation piles rock up in center.



WAGON DRILLS (below), sink holes 8 to 24 ft. deep on 7x7-ft. pattern for removing the rock in bunches. Holes are loaded with Atlas Giant Gelatin in 2x12-in. cartridges. Half-million yards of rock takes 300,000 lb. powder.

plus the presence of the new "free face" created by the two previous delays, kept the rock from flying outward toward the tracks.

As many as 190 holes, loaded with 40 percent Atlas Giant Gelatin in 2x12-in. cartridges, were fired in one shot. Total powder consumption ran 300,000 lb. Never once were the tracks blocked by blasted rock, though on one occasion a landslide, that had no connection with blasting, did tie up the line for 4 hr. Of course, as a safety precaution, railroad flagmen protected train movements during blasting operations.

The contractor's powder crew state that without the milli-second delay system of shooting, they would have had to load the holes much lighter, with resultant loss in fragmentation. For the contractor, John B. Bruns was general superintendent, Ralph C. LaMont was superintendent and Charles C. Middleton was engineer. The contract also includes 2¼ mi. of highway relocation and paving and an overpass over the tracks.

All-Weld Design Speeds Construction

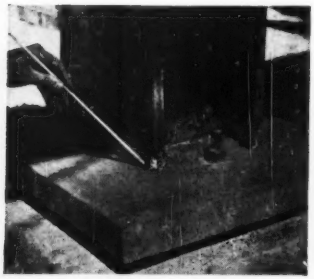
FENN COLLEGE of Cleveland got just what it was looking for, a fast quiet construction job, when it specified all-welded design for its new three-story 99x100-ft. engineering building. Foundations for the new structure, including 130 tons of steel, were erected, bolted, plumbed and guyed in five days. Welding operations took two men an additional ten days.

Seat angles and wing angles, for beam and girder connections, were shop welded wherever possible to eliminate a maximum of overhead welding. Columns were erected with 5x⅜-in. by 1-ft. splice plates bolted to each side of the web. These were later welded and additional ½-in. by 2-ft. splice plates were fillet welded to the flanges strengthening the connection. Ranging from 8-in. WF 40 lb. to 10-in. WF 112 lb., all columns, milled for single vee-joints, were connected to their 16x28x3-in. base plates at the shop with ⅜-in. fillet welds. Base plates were anchored to foundations by a 1x24-in. bolt.

Plates welded between the flanges forming a base section gave additional stiffness to two 40-ft. tower columns at the front of the building which lack bracing in two directions.

Charles Rowley and Associates were architects; Frank Eroskey & Associates, structural engineers; Albert M. Higley Co., general contractor; Vogt and Conant, steel erectors; and Burger Iron Co., steel fabricators.

DIFFICULT CONNECTION between girder, beam, and column is made with bracket cut from 21-in. I-beam. Web of beam is connected to bracket flange by wing angle with ¼-in. fillets. Wing angle of 30-in. girder connects to column through bracket web by lap joint.

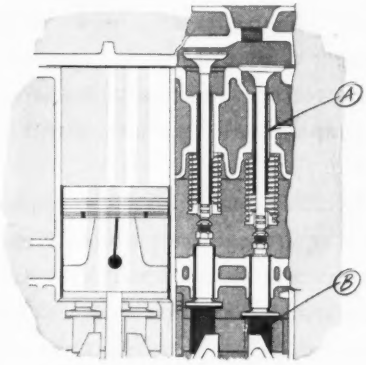


COLUMN FLANGES, milled for single vee-joint, are shop-welded to 3-in. base plate with ⅜-in. fillet weld. Plate is anchored to foundation by 1x24-in. bolt.

SPLICE PLATES are welded to column flanges by workmen. Plates are ½-in. narrower than flange to leave room for weld. Initial splicing is with 5x⅜-in. by 1-ft. plates bolted to sides of web. These are later welded. Most connections are made with field welded wing angles.

STANDARD ENGINEER'S CASE FILE

Case HD118A--Minimizing Valve-assembly Wear in Internal Combustion Engines



GASOLINE ENGINE VALVES AND CAM

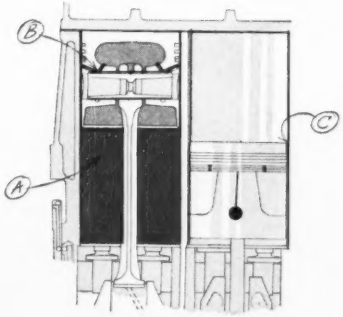
Heavy duty gasoline engines lubricated with RPM Heavy Duty Motor Oil and operated constantly under maximum loads required no valve service between regular overhaul periods. RPM Heavy Duty is also recommended for high-speed Diesel engines. Comes in five grades: SAE 10 to SAE 50.

A. Detergent in oil keeps engines clean -- prevents gumming on valve stems and wear-causing deposits.

B. Provides tough lubricating film -- will not rupture under high pressures and allow metal-to-metal contact ... stops extra wear on cams and other parts.

The base oil stocks of RPM Heavy Duty Motor Oil are specially selected for their ability to withstand the extreme operating conditions of hard service. Additives provide extra protection to engines. They help resist oxidation, sludging, corrosion, and prevent foaming of the oil in crankcases.

Case HD118B--Eliminating Cylinder Scoring in Internal Combustion Engines



GASOLINE ENGINE PISTONS AND CYLINDERS

RPM Heavy Duty Motor Oil provided adequate lubrication to prevent wear on cold pistons and cylinders in heavy duty gasoline engines from the instant the engines started to turn over.

A. A special compound in RPM Heavy Duty keeps film of oil on cylinder walls and other parts when the engine is idle -- lubricates until oil pump has time to function; keeps oil on parts when they are hot.

B. Cleansing agent keeps oil passages open and pistons and rings clean and working freely -- allows plenty of oil to flow to vital wear points and prevents gouging of cylinders.

C. Maintains oil-film seal on free-working rings -- reduces blowby and loss of power.

All varnish and lacquer removed from parts by RPM Heavy Duty Motor Oil, and other contaminants, remain dispersed in the oil and flow out with drainings.

For additional information and the name of your nearest Distributor, write

STANDARD OIL COMPANY OF CALIFORNIA

225 Bush Street, San Francisco 20, California

The California Oil Company
Barber, New Jersey

The California Company
17th and Stout Streets, Denver 1, Colo.

Standard Oil Company of Texas
El Paso, Texas

HEAVY DUTY RPM MOTOR OIL

Trademark Reg. U. S. Pat. Office

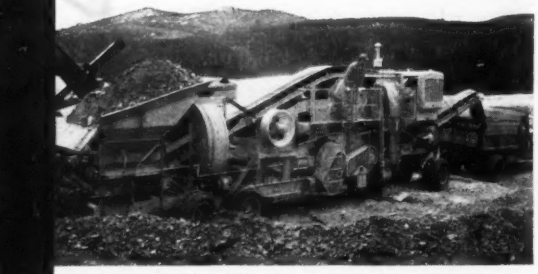
More tons per day
More hours of trouble-free operation
More profits

and Lower Costs . . .

PORTABLE CRUSHING and SCREENING PLANTS

The Cedarapids Master Tandem — master of aggregate producing jobs. Put a portable primary ahead of it and you have a complete quarry plant ready to do double duty for you. Operators report 150 tons an hour average production.

A Unitized Plant set up almost in the middle of an Oregon forest, typifies the portability and adaptability of Cedarapids equipment. Take it where you need it and put it to work in a hurry. Capacities of 250 tons per hour . . . and more . . . to meet any specifications.



One of the most popular of the Cedarapids line is the Junior Tandem with many contractors telling of production of more than 110 tons per hour, crushing to ⅝" with 75% of the material needing reduction. Big capacity and low cost at its best.

OPERATORS everywhere report they are getting larger volume production, greater flexibility and more hours of trouble-free operation with Cedarapids portable crushing and screening plants.

The installations shown are typical of Cedarapids equipment everywhere. With their large capacity and wide product diversification, they turn out better products at lower cost with very low maintenance. These plants are made up of Cedarapids matched crushers, screens and conveyors — balanced and coordinated for the most efficient operation. They are built in sizes and types to fit every product requirement, so regardless of the size of the job, you'll make more profit per ton with Cedarapids equipment.

In Wisconsin, a Cedarapids Pitmaster produces aggregates for secondary roads—There's lots of crushing capacity in the 10" x 16" jaw crusher and 16" x 16" roll crusher. Cedarapids horizontal vibrating screen assures the accurate grading required today.

Cedarapids
Built by IOWA

The IOWA LINE *of Material Handling Equipment Includes:*

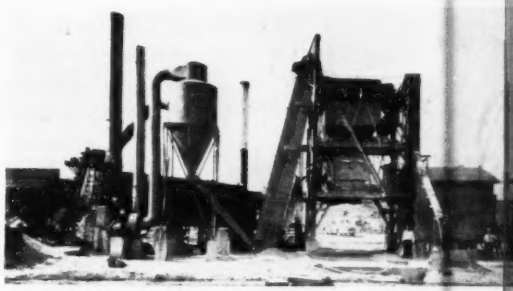
ROCK AND GRAVEL CRUSHERS • BELT CONVEYORS – STEEL BINS • BUCKET ELEVATORS • VIBRATOR AND REVOLVING SCREENS • STRAIGHT LINE ROCK AND GRAVEL PLANTS • FEEDERS – TRAPS • PORTABLE POWER CONVEYORS • PORTABLE STONE PLANTS • PORTABLE GRAVEL PLANTS • REDUCTION CRUSHERS • BATCH TYPE ASPHALT PLANTS • HAMMERMILLS • DRAG SCRAPER TANKS • WASHING PLANTS • SOIL COMPACTION UNITS • STEEL TRUCKS AND TRAILERS • KUBIT IMPACT BREAKERS • *See Your Cedarapids Distributor For Full Details*

..with Cedarapids Equipment!

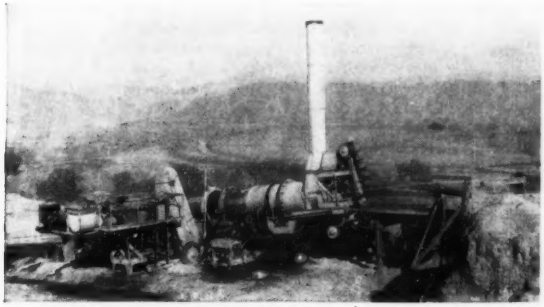
BITUMINOUS MIXING PLANTS

300 to 400 tons per day of thoroughly mixed bituminous material is the average of this Cedarapids Model "FA" super-portable batch-type plant. With drier and dust collector, you can meet the most exacting specifications.

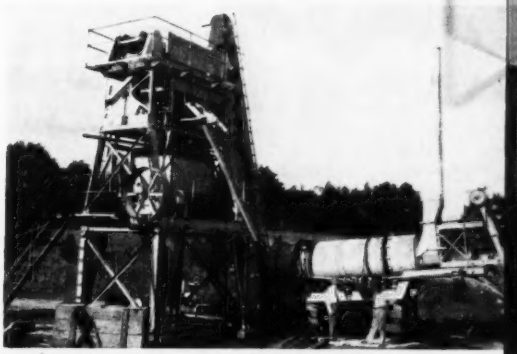
THESE bituminous mixing plants are typical of Cedarapids plants everywhere... producing a constant flow of a variety of bituminous mixes for building dependable, all-weather roads and streets. Each feature is built for simplicity of operation, maximum efficiency and easy portability. They'll deliver more tons per hour and they'll not only do it better, but at a lower cost. Made up of matched screens, pugmills, elevators and other component parts, Cedarapids Bituminous Mixing Plants produce thoroughly mixed materials, with each particle of aggregate completely coated with bitumens. When buying bituminous mixing plants, buy the best. Buy Cedarapids — a complete line of batch type and volumetric-type mixing plants.



Cedarapids Model "E" with dust collector in Pennsylvania produces large volume of accurately batched and thoroughly mixed black top for roads and airports at remarkably low cost, and it's portable, too.



20 to 30 tons per day of patching material is the job for a Cedarapids Patchmaster. It's a real low cost, lightweight, profit maker that you can use as portable or stationary continuous-mix plant. The Master Mixer—also a continuous mix type—has a capacity of 100 to 150 tons per hour.



In Alabama, one of the newest Cedarapids 1,000 lb. Model "A" batch-type plant turns out 75 to 100 tons per day. Here's a plant you can set up quickly for all your medium-sized jobs.

IOWA MANUFACTURING COMPANY

Cedar Rapids, Iowa, U.S.A.

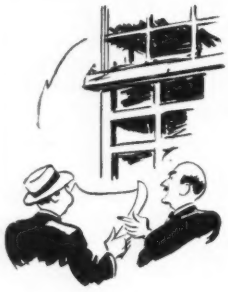
793

LEGAL ADVENTURES OF TRACTOR CONN

By LESLIE JOBB

By recounting the experiences of Tractor Conn, who symbolizes the average contractor, this series of articles, each based on the decision of an American court and presented in plain, non-legalistic terms, is designed to help construction men avoid costly legal pitfalls.—Editor

The Case of the Verbal Alteration



"One thing more," the owner interrupted. "I want a clause that states this contract cannot be altered by an oral agreement."

"Suits me," Tractor Conn agreed.

The two sought out an attorney agreeable to both and a contract was drawn up containing the owner's stipulation.

"That's fine. I'll be to work the first of the week," Conn stated as he signed the contract.

Tractor Conn started work the next week and made rapid progress on the building, with everything going according to plan and contract, until one day the owner dropped in with a worried look.

"Anything the matter?" Conn queried.

"Well, yes. What is this room supposed to be finished in?" the owner asked.

Conn told him.

"How much extra for maple veneer?"

Conn did some rapid mental arithmetic and named a figure several hundred dollars higher than the cost of the specified material.

"O.K. Go ahead and put on the veneer," the owner ordered.

Conn finished the building and presented his bill with the extra price for the veneer attached.

"I'll not pay a cent more than the contract called for," the owner stated.

"But you ordered the extra finish," Conn protested.

"Perhaps I did, but the contract contains a clause stating that 'this contract cannot be altered by an oral agreement'. How are you going to get around that?" was the owner's answer.

"We'll have to see what the courts say," was Conn's only retort.

And Tractor Conn was quite safe, as this identical point has come before the American Courts on many occasions with the decision being that a contract containing the stipulation in question can be altered orally. One leading case on this point is O'Loughlin vs Poli reported in 82 Conn. 427, where the court held "that a stipulation in a building contract, reduced to writing, that alterations shall not be made except on the written order of the owner or the architect may be waived by the parties concerned."

And there are also Illinois, New York, West Virginia, Arkansas, Massachusetts Michigan, Minnesota, and New Jersey decisions to the same effect.

The Case of the Accounting System

Tractor Conn had a clerk in charge of materials, a truckman to deliver the materials where they were needed — and constant trouble.

Finally, Conn communed with himself, and evolved a system, which he explained to the clerk and the truckman in this wise:

"From now on whenever the clerk delivers too much to the truckman, the former will be charged and the latter credited with the excess: whenever the truckman makes an underdelivery at the work, he is charged with the deficiency, and the clerk credited."

This system worked very well for several months, the clerk and the truckman were about even on the various charges and credits, but finally the clerk found himself in the hole more than $100 and protested vigorously against this amount being charged to him.

"That was the agreement, and you both agreed to it," Conn pointed out.

"Yes, but there are some agreements so absolutely unfair that the courts will not carry them out, and this is one of them," the clerk persisted, but the Georgia courts ruled in Tractor Conn's favor in Mayer vs Miller 61 Ga. 566.

More Legal Adventures of Tractor Conn Next Month

Southwest's complete, standardized line affords construction men an opportunity to fill their needs from one dependable source. From start to finish, no matter whether Allis-Chalmers, Caterpillar, International or Cletrac tractors are used, an economical Southwest unit is available to bring you increased profits.

In addition to the standard line, special Southwest Dump Wagons, Tampers, Heavy Duty Compaction Units, etc., are giving outstanding performance on out-of-the-ordinary jobs all over the country . . . Why not let Southwest help solve YOUR problems?

CONSTRUCTION MACHINERY DIVISION

Southwest Welding & Manufacturing Company

ALHAMBRA, CALIFORNIA

"Give us the tools . . ."

What Are *YOUR* Chances If There Are No Profits?

Since the November 2 election there has been a dazzling variety of plans to have the government do more and more things and spend more and more money. But there is almost no variety in the plans which are suggested to raise the money.

"Pay for it by taxing profits," is the standard refrain. Slap on an "excess" profits tax. Boost the corporations' income tax rate.

Well – why not? Haven't the corporations been making so much money that a big chunk of it can be turned over to the government spenders without hurting anybody?

The answer is no!

How high profits should be can be debated endlessly. Some people claim that 1948 corporation profits, which will amount to about $20 billion, are too high. They emphasize the fact that profits are larger in relation to investment than they were a few years ago. Other people think profits are low. They stress the fact that profits are not much larger in relation to sales than they have been historically. Both sides agree that in some individual cases profits have been too high, as in others they have been too low or non-existent.

But if we cut the total volume of profits drastically, we shall do so at our national peril.

There is no room for debate about that. For we shall choke off the crucially important job of building new plants and equipment for our industries. Squeeze hard enough, and America will go the way of Britain – down the long and painful skids of industrial decline. Widespread unemployment, especially among our industrial workers who produce new plants and equipment, will mark the dreary way. Here is a fact which the President, the Congress, the C.I.O., and all of us have a real reason to remember:

Almost two-thirds of all profits today are going to rebuild and improve plants and equipment.

More than $13 billion of this year's profits are being plowed back. They are going – as a large proportion of profits have always gone – to buy for workers better tools to work with, better surroundings in which to work. They are making possible better products, and more of them, for all of us.

The figures below show how companies have put more and more profit-dollars and a larger share of their profits to work in the business:

YEAR	PROFITS REINVESTED	% OF TOTAL PROFITS
1929	$2.6 billion	31%
1939	1.2 "	24%
1943	5.9 "	57%
1944	5.2 "	53%
1945	4.2 "	47%
1946	6.9 "	55%
1947	11.2 "	62%
1948 est.	13.0 "	65%

continued on next page

The record shows that each of us is the real beneficiary of this plowing back of profits.

Every American has benefited from these profits. Each dollar that business has put into its plants and equipment in the last thirty years has increased our yearly production by 35 cents.

This re-investment of profits has helped make possible a 75% increase in living standards since 1919.

It has helped increase wages from an average 48 cents an hour in 1919 to $1.36 today. Allowing for higher prices, that increase means that an hour's work today will buy twice as much as it did thirty years ago.

Why must business retain these billions of profits to improve its plants and equipment? Why must it plow back more and more? *The reason is that business already is caught in a tax squeeze.*

Federal taxes alone take at least thirty-eight of each one hundred dollars a company earns. Then, if the company pays out to its stockholders any part of what is left as dividends, the federal personal income taxes of the stockholders may take up to 77% of those dividends. Under these conditions, so few people are willing to invest in industry that the stock market is stagnant. Companies can not raise in that market the money they need for improvements.

The result: business must rely more and more on plowed-back profits to pay for new plants and equipment.

We know that everywhere in industry new and better ways of producing goods are standing ready for use. The previous editorial in this series mentioned some of them. We know, too, that depression and war put our industries far behind schedule – as much as $100 billion behind – in getting the new tools they should have had to keep themselves in first-class shape. McGraw-Hill is now completing a survey of industry that will measure these needs. The results will be published in this editorial series. We know already that in 1949 alone industry will need $18 billion or more for this purpose.

And all but a small fraction of that sum must come from profits.

Our prosperity, our strength as a nation, our hopes for better living depend on our continuing to generate and to plow back a large volume of profits.

For that reason we should not thoughtlessly follow these people who propose to pay for any and all new government activities by saying simply, "Soak the corporations." There is no need to follow them. There are other ways of obtaining necessary funds.

First and foremost should be economy within the government itself. If its citizens must pay still higher taxes, then surely government should exercise rigid self-restraint, cutting out all but the most essential activities and expenses.

After economy should come consideration of a broader federal tax base.

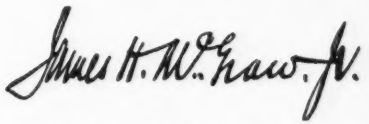
If these and other methods of raising money are inadequate and if taxes must take a bigger bite from business profits, two facts are clear. We should not adopt an "excess" profits tax with all of its complications and all of its corrupting effect on business. A moderate increase in the regular income tax on corporations is much less dangerous. *But even such an increase, if necessary, should be accompanied by special allowances for expansion and depreciation that will encourage companies to continue spending their earnings for new plant and equipment.* We all have a stake in that.

At this critical juncture in our history profits have a new and vastly more important role than they have ever had. In unprecedented degree they are the drive behind our present prosperity and the key to a better, stronger future.

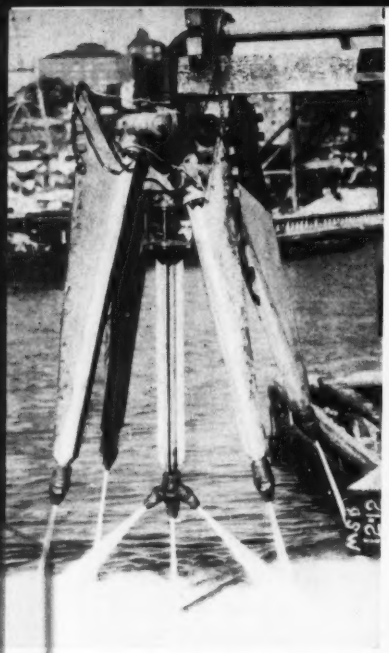
Give profits the axe and the blow does not stop there.

It cuts into the employment, the prosperity and the strength of our nation.

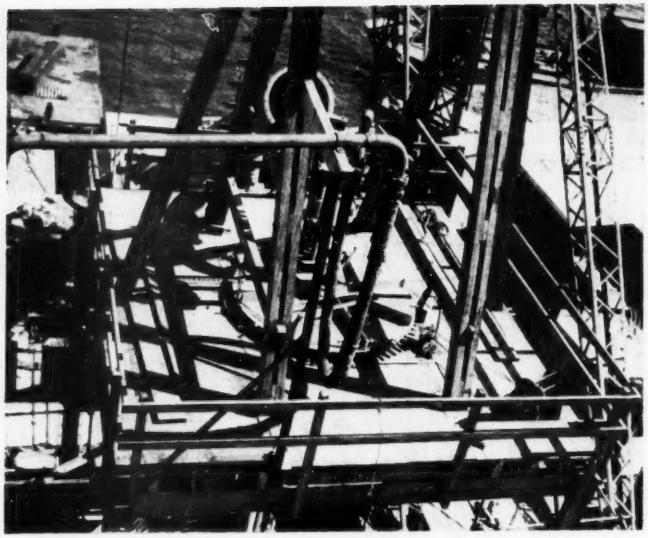
Everyone of us has a stake in how the President and Congress handle taxes on profits – and now is the time to remind them of that stake.



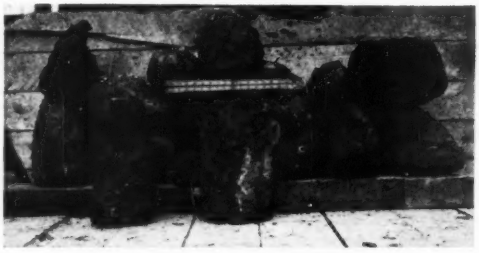
President, McGraw-Hill Publishing Company, Inc.



NO! NOT BUSINESS END of a rocketship, but a 7-jet, 150-psi. hydraulic auger which dug 50 ft. into tough Sydney Harbor clay. Here three 1-in. orifices on center shaft and ⅝-in. nozzle on four extendable wings get surface test. Entire assembly can be rotated in horizontal plane from surface.



JET EQUIPMENT is supported on elevated platform. Pressure pipe to auger is in foreground and pneumatic lift discharge flume is seen in background. Turntable to rotate jet assembly is operated by hand winch in right foreground.

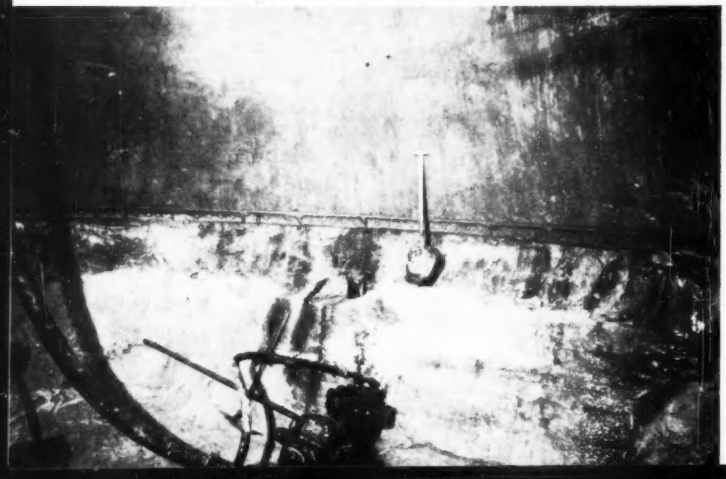


LUMPS OF MATERIAL excavated by hydraulic auger are removed to surface by pneumatic lift. Larger ones measure 10 in. in diameter.

Hydraulic Auger and Air Lift Excavate Clay in Caissons

McGraw-Hill World News

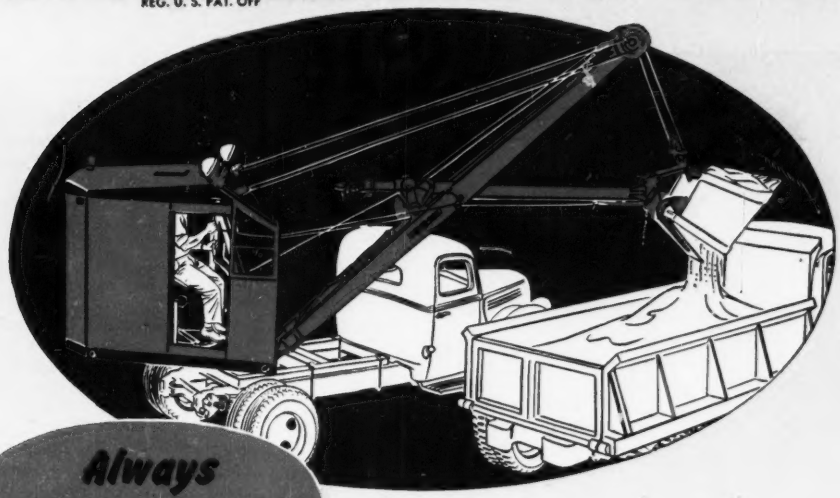
TO SINK foundation caissons for a 25-ton crane in Sydney Harbor down to bedrock, the New South Wales Maritime Service Board cut through 50 ft. of tough clay by water jet excavation. A specially designed seven-jet, 150-psi. hydraulic auger loosened the clay which then was removed by a pneumatic lift. Operated from an elevated platform above the surface, jet equipment dug out the tough center core inside the cutting edge of the 20-ft. diameter cylindrical caisson. Pressure of the cutting edge forced clay into the center for removal by air lift. For each caisson more than 15,000 cu. ft. of clay had to be removed. The harbor was 50 ft. deep at the point of excavation. Pictures, through the courtesy of the Maritime Service Board N. S. W., show operation.



← INSIDE CAISSON CUTTING EDGE hits bedrock after sinking through 50 ft. of clay. Pneumatic sump pump in foreground mops up seepage.

"QUICK-WAY" TRUCK SHOVELS

REG. U. S. PAT. OFF



Always DEPENDABLE

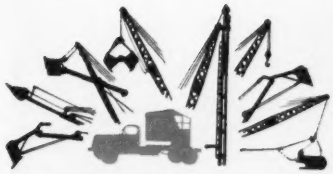
Yes, **"QUICK-WAYS"** are dependable—and economical, quick and profitable to you. **"QUICK-WAY'S"** accurate balance and strength with light weight permit higher travelling and working speeds, more yardage per day. Simplicity of design and quality steel construction give longer working life, lower operating and maintenance costs, lower initial cost and easier servicing. There's a **"QUICK-WAY"** owner near you, ask HIM.

1. **Wherever a truck can go, and at truck speed, that's where you can take a "QUICK-WAY." Low center of gravity and proper balance does it.**

2. **Speed on the job moves more material per day at less cost—a "QUICK-WAY" gets around fast.**

3. **First in the field and still the leader, "QUICK-WAYS" have gotten around more and longer than any other truck mounted power shovel.**

Service available from our distributors strategically located throughout the United States and worldwide



Model E: 4/10 cu. yd. cap., for mounting on any standard 5-ton truck.
Model J: 1/4 cu. yd. cap., for mounting on any standard 1½-ton truck.

"QUICK-WAY"

For speed, portability, economy of operation, and adaptability to a wider range of jobs, nothing of comparable size equals a "Quick-Way" Truck Shovel.

"QUICK-WAY" TRUCK SHOVEL CO.

DENVER, COLORADO

Air Lift Hauls Rigs and Rations

THIS LOADER and heavy-duty truck, as well as all other project equipment, were flown to Northern Quebec for road construction and maintenance work in conjunction with huge Hollinger Consolidated Gold Mine Ltd. iron ore extraction enterprise. Air hauls are from Seven Islands, 325 mi. to south, nearest deep water port.

THE ONLY ACCESS to the new iron ore field on the Labrador-Quebec border north of the St. Lawrence River is by air. So Hollinger Consolidated Gold Mine Ltd. flew all of the road construction and maintenance equipment including bulldozers, gravel loaders, and large trucks into this virgin terrain for their huge iron ore extraction enterprise. Most of this was flown in from Seven Islands, the nearest deep sea port, 325 mi. south on the St. Lawrence River. A two plane air lift of DC-3's making a daily flight keeps the 180-man camp in food and supplies. These planes operate off a landing strip at Knob Lake from which provisions are trucked 10 mi. to the Burnt Creek base camp.

Thus far operations have been confined to proving iron ore deposits and to highway construction and maintenance. From 12 to 14 men with heavy equipment have built and maintained 75 mi. of rough highway in the Burnt Creek vicinity.

Although intense Canadian winters dictate a seven month working year, from April until November, 72-hr. weeks enable the camp to make its quota of hay while the sun shines.

The payoff for all this work will come with the completion of 425 mi. of railroad, to be started this year between Seven Islands and Knob Lake, on which rich ore will be shipped out. Put in by the Quebec, North Shore, and Labrador Railroad Companies, this is the largest railroad project in Canada since the '20's. The entire enterprise including docks, railroads, geological exploration and land development is expected to cost $250,000,000. M. G. Hanna Co., Cleveland, has minor interest in the project along with Hollinger Consolidated Gold Mine Ltd.

MAIN SUPPLY LINE in project area is this rough "highway" from Knob Lake landing strip to Burnt Creek base camp. While not finished, roads are adequate for travel by jeeps and heavy trucks in spite of heavy rains.

to Northern Iron Development

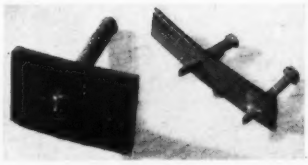
SHORT WORKING SEASON (7 mo.) necessitates long work week. Men start at 7 a.m. and work 12 hr., 6 days a week. Endless squadrons of insects and sudden summer rains are worst enemies of workers.

FIELD MANAGER for all Hollinger activities in Labrador-Quebec area is J. A. LITTLE (left). CHARLES HOYT (right) is in charge of all air operations including two-plane air lift from Seven Islands and pontoon plane operating from Burnt Creek to field camps. Prospective cat skinner (center) is JOHN LITTLE, son of field manager.

Powder Gives Ordinary Steel Properties of Tool Steel

YOU WON'T BELIEVE IT—and ye editor didn't either until he witnessed an eye-goggling demonstration—but a powder compound has been developed that gives tool steel-cutting properties to low-carbon steel and seems to make tool steel even harder. We saw ordinary wire and cut nails given a quick treatment and then driven through tough tool steel. We saw a common reinforcing bar, fashioned into a chisel and treated, cut chunks out of railroad rail. We saw a cheap twist drill that ordinarily wouldn't more than dent spring steel go right through such steel when given the treatment. We saw reports of detachable drill bits whose life had been increased fourfold by application of the powder.

Sam Necamp, of Necamp Metallurgical Laboratories, 1 Mercer St., New York 13, N. Y., has been fooling around with the idea of a steel-hardening compound for years. He now believes he has the answer,



BY SIMPLE APPLICATION of powder and heat, reinforcing bar and nails are toughened to where they can be driven through tool steel.

and calls the stuff "Hi-Speed-It." He swears it is non-toxic, and if you want deep penetration of the case hardening, simply give the steel another treatment.

Here's how the stuff is applied. Heat the steel in a torch, blowpipe or forge to cherry red, 1,400-1,700 deg. F. for low-carbon steel. Then dip the heated part into the compound, replace it in the heat until the steel again becomes cherry red and the powder has fused into the metal, then quench quickly in water. That's all there is to it. A light scale on the surface is easily removed down to bright metal with a few strokes of a hand brush.

For treating tool steel, bring the metal up to white heat, 1,800-2,200 deg. F., and quench in oil instead of water. Otherwise the process is the same.

It appears that the application in the construction field is almost unlimited. Besides making cutting tools out of reinforcing and other soft steel, the life of picks, moils, chisels, bars, shovels, adzes, etc., might be greatly prolonged. Treated rock bits should last much longer. Grader, scraper and bulldozer cutting edges could be treated in trench fires. Shovel, clam, scarifier and ripper teeth could be easily treated.

It looks as if Sam Necamp has something here that construction can use.

COMPARE

THE PROFIT-MAKING FEATURES OF THE 1/3 YARD SCHIELD

BANTAM

TRUCK MOUNTED SHOVEL • TRENCH HOE
DRAGLINE • CLAM • PILEDRIVER • CRANE

These BANTAM features mean longer life, lower maintenance costs, easier operation and more operating hours on the job.

VERSATILITY

6 profit-makers in one machine. Convertible in minutes from shovel to trench hoe, dragline, clam, piledriver, crane. Interchangeable split type laggings give high performance on all operations.

MOBILITY

The BANTAM is balanced for mounting on any 1½ ton truck. Drives up to the job and digs in. Saves time where time counts. Ideal for operation in tight spots. Also available on half-tracks.

CAPACITY

Full circle design and fast cycle operation piles up profits. Normal capacity, yards per hour; Shovel or Dragline—60 yards, Trench Hoe—100 feet of 5 ft. ditch.

Write for complete details

THE SCHIELD BANTAM CO., INC.

221 PARK STREET • WAVERLY, IOWA

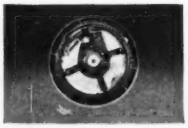
SOLD AND SERVICED BY LEADING CONSTRUCTION MACHINERY DISTRIBUTORS THROUGHOUT THE UNITED STATES, CANADA, AND FOREIGN COUNTRIES

● FULL BALL BEARING MACHINE DESIGN

All major shafts, gears, and drums roll on ball bearings. Means easier operation, greater economy, less downtime on the job.

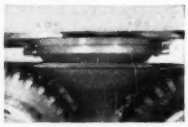
● SMOOTH OPERATING CLUTCHES

Trouble-free mechanical clutches require least amount of attention, reduce operator fatigue. Drum clutch illustrated is internal expanding, snap-in type. Swing clutches are single disc, snap-in type.



● MODERN HOOK ROLLER DESIGN

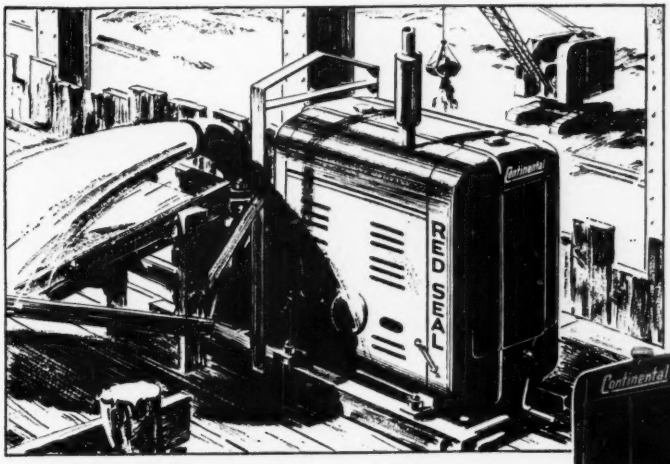
Upward pressure when operating is carried by adjustable, solid steel bronze bushed hook rollers reducing strain on center pin and resulting in longer life of turntable roller bushings. Cuts maintenance costs—more profits to you.



● PROTECTED BULL GEAR

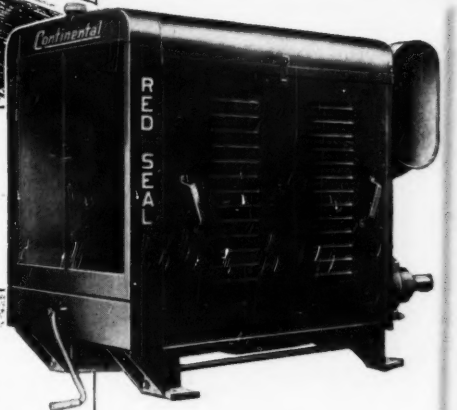
Turntable base is one-piece special alloy steel casting with integral bull gear. Inside location of gear protects it from dirt and grit, permits cleaner lubrication.

RED SEAL ENGINES



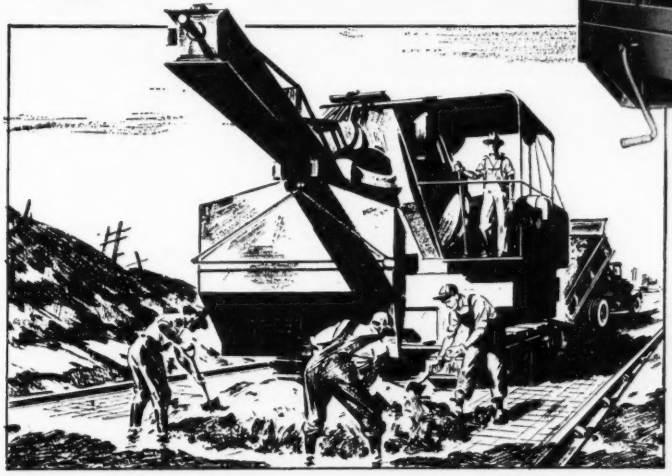
CONTINENTAL MOTORS — Powerful as the Nation — AMERICA'S STANDARD

BUILT FOR THE JOB!



There's RED SEAL Power for your job.

No matter what your application, you'll be money ahead with Continental Red Seal — the engine built for the job. There are more than 80 Red Seal industrial models, including full Diesels and engines designed for butane, distillate, and natural gas fuels. Write for bulletins, indicating approximate horsepower and type of fuel.



R-600 ENCLOSED POWER UNIT

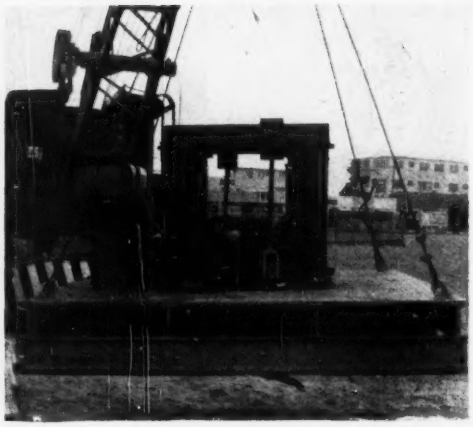
Here's a mighty package of power — the R-600 power unit, delivering up to 140 shaft horsepower at 2000 r.p.m. Superior torque and B.M.E.P. characteristics adapt this postwar model to either continuous or intermittent operation on a wide variety of jobs. Write for Bulletin IR47602.

NATIONWIDE SERVICE NETWORK

Genuine Red Seal parts and expert service are available coast to coast — your safeguard against costly time-out when repairs or replacements are needed.

Continental Motors Corporation
MUSKEGON, MICHIGAN

THIS WOOD PILE has been loosened by hydraulic rig. Note how steel shoes dug into pile.



3-TON RIG is easily moved by truck crane.

Hydraulic Rig Removes Wood Piles

A SELF-CONTAINED RIG using four hydraulic rams to remove wood piles has been developed by Lee H. Barron, Glendale, Calif., contractor and tested on a Venice, Calif., recreation pier job.

The rig is designed so that as the four hydraulic rams push upward on a collar, steel shoes dig into the wood pile and effectively loosen it. Travel of the rig is about 22 in., but usually only 6 or 8 in. is necessary to loosen a pile to the point where it can be removed by an accompanying truck crane, using a simple steel cable sling. As each ram is 35-ton capacity, total lifting force is 140 tons.

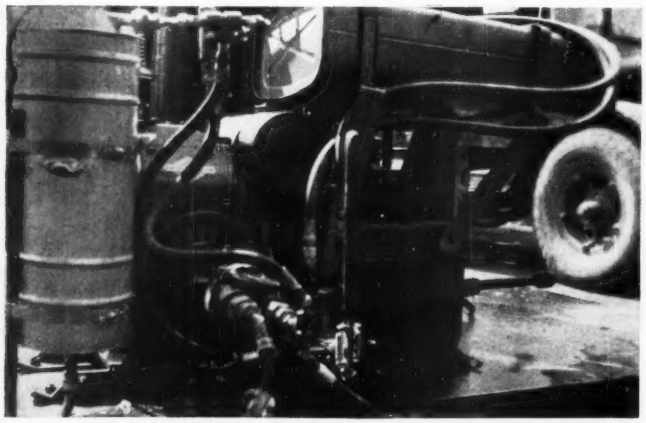
Pressure for the operation of the hydraulic rams in removing wood piles is supplied by a small hydraulic pump, which is conveniently mounted on the platform and equipped with two operating levers controlled by one man. This pump delivers 1.15 gal. per min. at 10,000 psi.

The machine can be transported easily to the job by truck and moved around by truck crane as it weighs only 3 tons. A time cycle of 8 min. per pile can be attained for ideal conditions—that is, where piling is close together and no obstructions need to be removed. This time cycle breaks down as follows: 10 sec. to lower wedges, 3½ min. to complete 22-in. upward travel, 30 sec. to pull piling through machine, 30 sec. to return travel 22 in., 3 min. to hook up cable sling and lift over next pile.

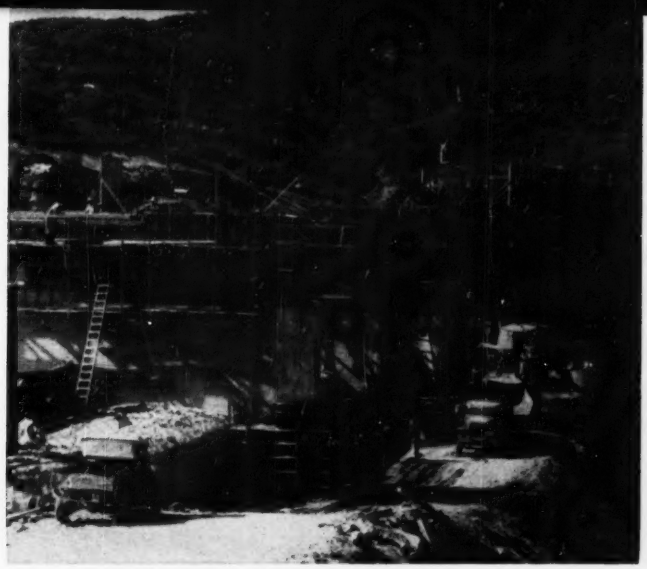
For Large and Small Jobs

This machine is adaptable for use on small bridge rehabilitation jobs where only 20 to 50 piles must be removed. It is also said to be effective on large jobs where many more piles are involved.

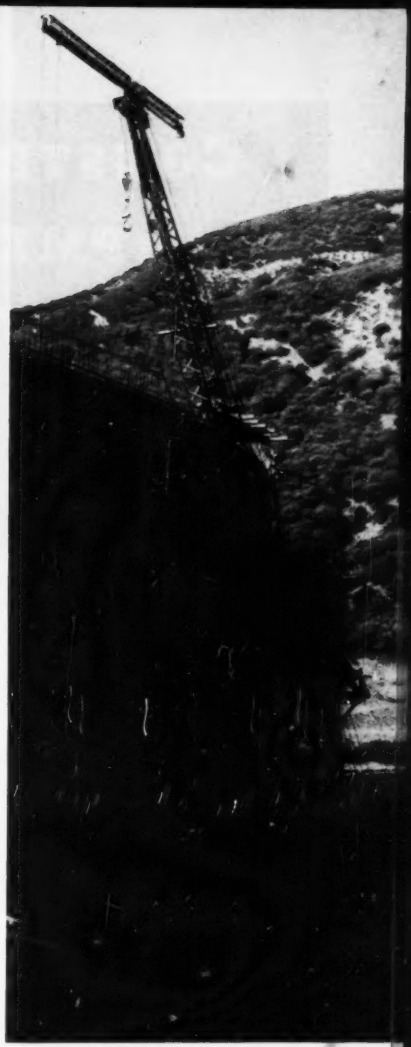
Primary advantage of the new rig lies in its simplicity. No jets are required and thus no high-speed, high-pressure pumps, pipelines, and other equipment are required.



← MOUNTED ON PLATFORM is small hydraulic pump, supplying pressure for operation of hydraulic rams. One man operates two levers.



DUMP TRUCK deposits concrete batch in Koehring 34E paver for mixing on Gilbralter Dam raising project for Santa Barbara, Calif. reservoir. Northwest crane hoists concrete at top of dam in 1-yd. Gar-Bro bucket.



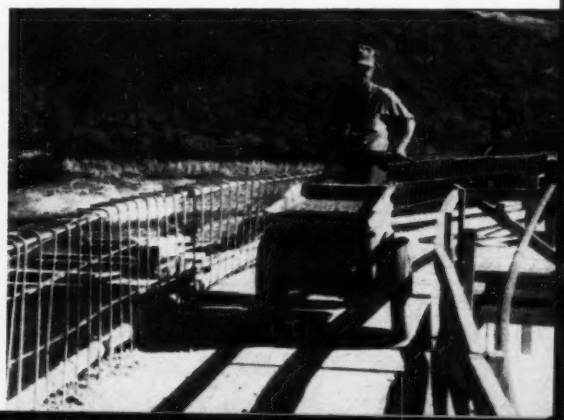
CANTILEVER JIB BOOM on barge-mounted Koehring crane floating in reservoir simplifies form handling.

Concrete Dam Raised With Mobile Equipment

IT WAS ONE of those messy small jobs—pouring 16,000 cu.yd. concrete in raising Gilbralter Dam 15 ft.—but V. D. Case Co., Long Beach, Calif., contractor, worked out a nice scheme of form and concrete handling with cranes and power buggies. These pictures tell the story on the job done for Santa Barbara, Calif., Water Supply. Charles Clapp was superintendent for Case, and Victor S. Fago was resident engineer for Leeds, Hill, & Jewitt, consulting engineers.

MOTORIZED GAR-BRO BUGGY (below) takes concrete from hopper while crane returns for another load. A total of 16,000 cu.ft. of concrete placed on project raised dam 15 ft.

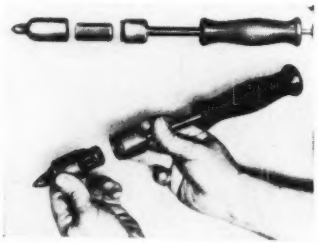
TAKEN FOR A BUGGY RIDE. Concrete rolls from receiving hopper (below) to forms in powered cart. Crest of old dam makes ideal runway; passing platform is cantilevered over downstream face at right.



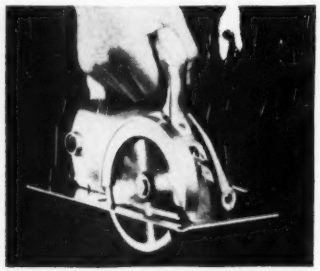
CONSTRUCTION EQUIPMENT NEWS

JANUARY 1949 REVIEW of Construction Machinery and Materials

MOTOR GRADER—New, powerful Model BD-3 motor grader, weighing 19,042 lb., is powered by 78-brake-hp. General Motors two-cycle diesel engine of three cylinders. Features include unit injection and four-way cooling. Tubular frame provides strong rigid backbone and permits inclosed controls. Mechanically controlled front mounted lift cases provide direct down pressure. Throat clearance of 28 in. enables grader to handle large windrows. Blade has a full 360-deg. swing which enables operator to grade either forward or reverse. Machine has six speeds forward ranging from 2.21 to 15.58 mph. and three reverse speeds from 2.64 to 5.74 mph.—**Allis-Chalmers Mfg. Co., Tractor Division, Milwaukee, Wis.**

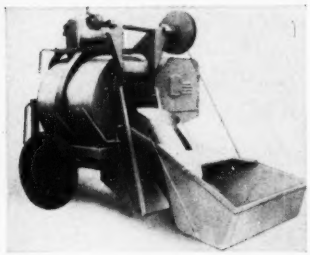


SOLDERING IRON—Heated by cartridge—requiring no electric current or external heat of any kind—new Quick-Shot soldering iron utilizes a chemical cartridge that heats the iron to working temperatures in 5 sec. and maintains intense heat for 10 min. Cartridge contains chemical mixture of metal powders and oxidizing agent. It is ignited by pointed spring rod which when pulled and released strikes primer to start heating action. Cartridge is non-explosive. A new cartridge is used each time the iron is operated.—**Kemode Mfg. Co., 2 West 46th St., New York 19, N. Y.**



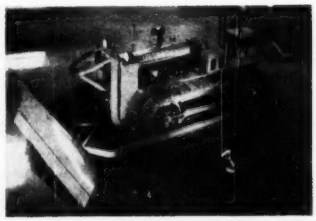
ELECTRIC SAW—Equipped with blade $4\frac{1}{2}$ in. in diameter, Guild saw capacity is a full $1\frac{1}{4}$ in. on straight cutting or 1 in. at a bevel of 45 deg. Driven by Universal motor operating either on ac. or dc. up to and including 60 cycle, standard 110 v. Over-all dimensions are: length, $10\frac{1}{2}$ in., width $4\frac{1}{2}$ in., height 8 in. Shipping weight is 10 lb. Can be tilted to 45 deg. for bevel or compound mitre cut. Adjustable ripping guide makes fast, accurate ripping simple. Safety guard protects operator. Blade teeth are exposed only where they are actually cutting.—**Porter-Cable Machine Co., Syracuse 8, N. Y.**

STEAM HOSE FOR PILEDRIVERS—High pressure steam hose is specially designed to withstand deteriorating effects of a combination of steam and hot oil which occurs when lubrication is applied to piledriving tools through steam pressure lines. Braided wire construction gives hose high bursting strength and acts as armor to withstand heavy external abuse. Constructed of a rubber core especially compounded for oil resistance, two or three plies of braided steel wire, depending upon diameter of hose, one ply of asbestos cord and a heat-resistant rubber cover. Marketed under trade name "Matchless Piledriver Hose."—**United States Rubber Co., Rockefeller Center, New York 20, N.Y.**



MIXER WITH POWER LOADER—New $3\frac{1}{2}$-S end discharge, non-tilting mixer is equipped with power loader and automatic water-measuring tank. Large skip has wide throat to permit fast, clean discharge into mixer drum when loader is raised. Wheelbarrows may be dumped directly into loading skip, eliminating necessity of high shoveling into batch hopper. Machine is mounted on pneumatic-tired disk wheels, equipped with Timken bearings.—**Muller Machinery Co., Inc., Metuchen, N. J.**

METAL PRIMER—Rust-O-Primer is a vinyl base, quick drying wet primer applicable over wet or dry, clean or rusted metal including steel, aluminum or galvanizing. Purpose is to provide a hard, paintable foundation for any type of paints.—**Wilbur & Williams Co., Greenleaf and Leon Sts., Boston 15, Mass.**



SMALL SIZED TRACTOR—Crawler-type tractor weighing 3,200 lb. and measuring 43 in. in width is adaptation for civilian use of Clark airborne tractor used in World War II. Tractor is equipped with forward and reverse clutch used in connection with a four-speed transmission. Tractor is powered by 31-hp. Continental motor. A winch with a three-ton pulling capacity is available.—**U. S. Tractor Corp., Warren, Ohio.**

"My FORD is the BEST truck I ever OWNED"

Roadside Report

FORD TRUCKS

IVAN HOBBS

FINDLAY, OHIO

"MY F-7 FORD dump truck has already given me 7,000 miles of top service, and I haven't babied it either," reports Ivan Hobbs who uses his truck in construction work in the Findlay, Ohio area.

"My usual load is 18,000 lbs. of crushed stone and my hauls are under all kinds of conditions. My Ford is the best truck I ever owned and I bought it because my previous Ford Trucks lasted longer and cost me less to operate."

Thus does Mr. Hobbs add his voice to a nationwide chorus of Ford Truck enthusiasts. Truck users everywhere are pepped up about Ford Truck performance. They love the luxury of the new Ford Million Dollar Cab. And they get the biggest bang out of Ford Bonus Built construction . . . the superstrong construction that contributes to long truck life. Life insurance experts prove Ford Trucks last longer.

ONLY THE FORD BIG JOB HAS ALL THESE FEATURES!

- ★ New 145-h.p. Ford V-8 engine for top performance.
- ★ Ford exclusive concentric dual-throat carburetor for more power, more economy.
- ★ New heavy duty 5-speed transmissions for operating flexibility.
- ★ Big Ford 16-inch by 5-inch rear brakes in the F-8; 16½-inch by 3½-inch in the F-7.
- ★ Ford Super Quadrax 2-speed axle with vacuum shift for performance flexibility in Model F-8 (single speed axle also available); single-speed Quadrax Hypoid Axle in Model F-7.
- ★ Large diameter (10-inch) wheel bolt circle with 8 studs to allow for extra-strong hub construction.
- ★ Million Dollar Cab with Ford Exclusive Level Action suspension for greater driving comfort.
- ★ Nationwide service from over 6,400 Ford Dealers.
- ★ Ford Bonus Built construction for long truck life.

Gross Vehicle Weight Ratings: F-8 up to 21,500 lbs., F-7 up to 19,000 lbs. Gross combination ratings: F-8 up to 39,000 lbs., F-7 up to 35,000 lbs.

FORD 1949 *Bonus Built* TRUCKS 1949

BUILT STRONGER TO LAST LONGER

USING LATEST REGISTRATION DATA ON 5,444,000 TRUCKS, LIFE INSURANCE EXPERTS PROVE FORD TRUCKS LAST LONGER!

YOU CAN INSTALL AN
"Aero-Seal"
HOSE CLAMP
WITH ONE HAND

THEY'RE SELF-FEEDING

1. "Aero-Seals" can be installed without removing the hose. Simply spring ends apart and snap around. Spring steel clamp retains circular shape.

2. Worm gear teeth engage perforated strip automatically. A fractional turn of the worm drive starts tightening action.

3. Tightening clamp with screw driver results in uniform clamping and *sealing* pressure around entire circumference. No crimping or bunching of hose to cause leakage.

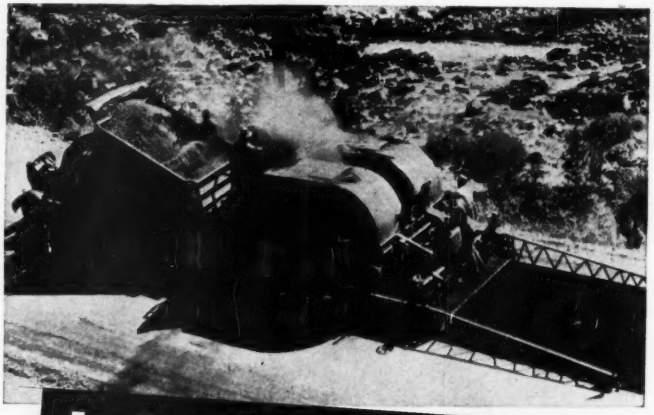
"AERO-SEAL" Worm Drive Hose Clamps are easy and fast to install—save plenty of time and trouble. No loose parts to drop. Worm Drive is proof against vibration — "AERO-SEALS" *will not loosen.* Write TODAY for free sample.

WORM DRIVE

"Aero-Seal"
T. M. Reg. U. S. Pat. Off.
HOSE CLAMPS

BREEZE CORPORATIONS, INC.
AIRCRAFT STANDARD PARTS CO. DIV.
30 S. Sixth Street, Newark 7, N. J.

OPEN-TROUGHED CONVEYOR—Portable machine mounted on 6x16 auto tires or 28-in. steel wheels has capacity up to 60 tons per hr. Head can be elevated to height of 16 ft. Light weight is obtained by arc-welded lattice-type construction. Powered either by electric motor or gasoline engine. Troughing action is accomplished through use of bell-type roller which is standard equipment or the three-roller type of troughing rolls. Bell rollers are supported on grease-sealed ball-bearing pillow blocks requiring lubrication only three or four times a year. Sealed aluminum worm-gear driving case at head end of conveyor applies power through totally inclosed drum-type pulley. Hoisting mechanism is of heavy-type tubing, arc welded for maximum strength; it operates with scissor-type action, supporting conveyor at any angle.—**Baugham Manufacturing Co., Inc., Jerseyville, Ill.**



For Tough Mixing Jobs . . . The New Heavy-Duty Moto-Paver

For heavy bituminous mixing, retread and stabilization jobs—under the toughest kind of operating conditions—the new heavy duty Moto-Paver delivers dependable, low-cost performance.

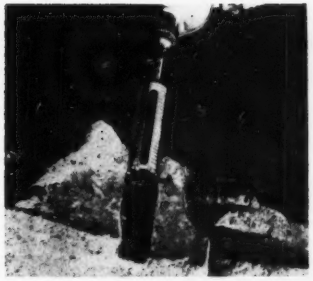
Developed especially to meet the rugged conditions of hilly and mountainous terrain, this new and more powerful Moto-Paver has proved equally efficient under widely different conditions in various sections of the country.

See your local H & B distributor or write direct for specifications and complete information.

Based on design proven by three years successful operation of the standard model, the heavy duty Moto-Paver includes a larger 8-cylinder mixer engine, a larger belt-fed truck hopper and improved bitumen control as standard equipment. Windrow loader, heavy duty air cleaners, transfer pump and other optional equipment are available to meet special operating conditions.

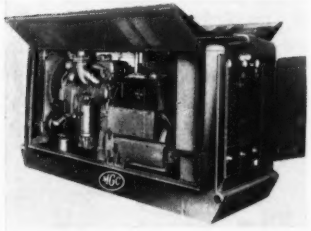
H&B

HETHERINGTON & BERNER INC.
735 Kentucky Avenue, Indianapolis 7, Indiana

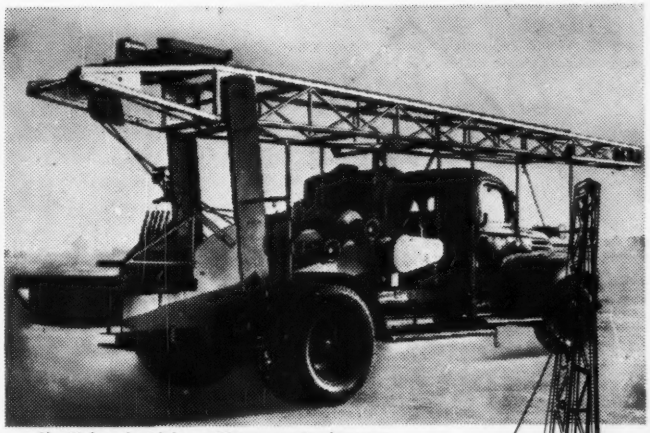


ROTARY CONCRETE DRILL—Embodies core-drill design and has side exhaust slot which permits core particles to escape. Drill penetrates concrete at rate of 2 in. or more per min. in diameters of ¼ to 2 in. Carbide cutters are located around perimeter of core. Tilden drill bit is designed for use with ordinary electric drill motors. Drills are available in all sizes from ¼ to 2¼ in. Core drills in diameters from 2 to 6 in., and in lengths up to 4 ft., can be furnished on special request.—**Tilden Tool Mfg. Co., 1995 N. Fair Oaks Ave., Pasadena 3, Calif.**

HEATING CABLE—An inexpensive installation of heating cable will keep an open channel through ice dams which form on roof eaves during severe winter weather, preventing seepage. Cable is mounted to cover about a 3-ft. strip bordering the eaves with a zig-zag design. Sixty feet of cable will take care of a section of roof 20 to 25 ft. long. Sixty feet of flexible, lead-covered, insulated resistance wire with both ends connected to an ordinary attachment plug are contained in each set. An ordinary weather-proof convenience outlet can be installed on the outside of the house to furnish the 110 v. required for the cable.—**General Electric Co., Schenectady, N. Y.**

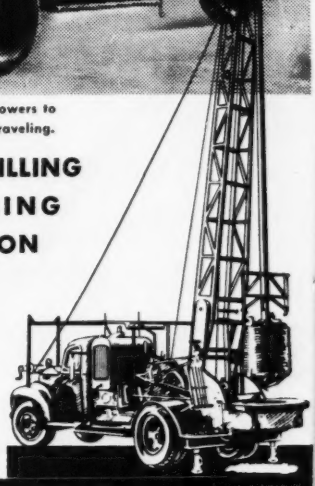


ENGINE GENERATOR SETS—Available in ac. outfit from 5 to 60 kw. Also dc. generators of compound-wound interpole type, 5 to 60 kw. Units are designed for stationary or portable standby service and will furnish light and power for every need.—**Motor Generator Corp., Troy, Ohio.**



The 32 foot derrick has a 20-ton capacity; lowers to a horizontal position over truck cab when traveling.

SEWAGE DISPOSAL DRILLING
WATER WELL DRILLING
MINERAL EXPLORATION
SOIL TESTING
CALYX DRILLING
BELLED FOOTINGS
AND PIER HOLES
OILFIELD WORK



CALIFORNIA
EARTH BORING MACHINE
Drills Holes 10 in. to 72 in. in Diameter, 200 Feet Deep!

Any earth boring operation is performed by the California Earth Boring Machine at substantial savings, because the equipment is especially designed and engineered to get the job done. Built as a unit on skids which can be mounted easily on any truck chassis 1½ tons or larger.

SEND FOR LITERATURE—A new 12 page brochure tells the success stories of contractors who use California Earth Boring Machines, and cites the case histories of jobs and the costs per foot-of-hole drilled. Ask for your copy on your business letterhead.

California Welding & Blacksmith Shop, Inc.
7222 East Slauson Avenue, Los Angeles 22, Calif.

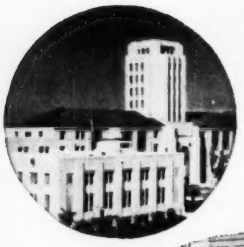
GENUINE
DOUGLAS FIR PLYWOOD

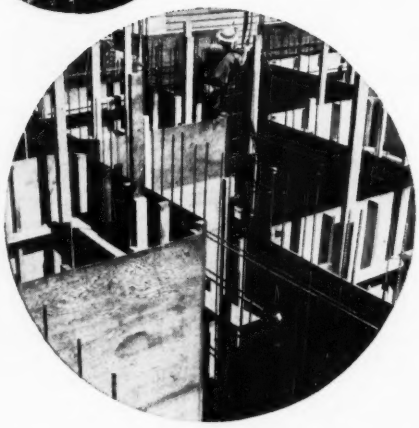
PLYFORM

CONCRETE FORM PANEL
INTERIOR-TYPE GRADE B-B
D.F.P.A.
INSPECTED

Now Manufactured in Accordance With New Grade Specifications

—as set forth in U. S. Commercial Standard CS45-48





PLYFORM—the multiple re-use concrete form panel of Douglas fir plywood—is now manufactured to meet new grade specifications, adopted to make this preferred material more readily available. PlyForm continues to be manufactured with the same highly moisture-resistant (but not waterproof*) glues which have served so successfully for more than a decade.

PlyForm continues to offer the advantages which have made it so popular—speed and economy of application . . . freedom from form joints and resultant concrete fins . . . smooth, easily finished, paintable concrete surfaces. PlyForm also offers special, superior ply construction for added durability.

PlyForm continues to be sanded on both sides. Panels are edge-sealed with a distinctive green sealer, and are mill-oiled unless otherwise specified.

PlyForm is produced in strict accordance with the new U. S. Commercial Standard CS45-48, which provides that both faces shall be of B (Solid) veneer—a new quality of veneer, smooth and firm, but which may contain small, tight knots, tight splits and circular repair plugs.

Actual use of the new PlyForm grade shows that it fully meets the requirements for virtually all concrete construction. For special architectural concrete, requiring the highest possible finish, the architect or contractor may specify Exterior-type or Interior-type Douglas fir plywood in grades having "A" (Sound) face veneer—or one of the new resin-impregnated overlay panels which have a dense, hard facing bonded to the plywood. For more specific data, including a copy of U. S. CS45-48, write the Douglas Fir Plywood Association, Tacoma 2, Washington.

EXT-DFPA · *CONCRETE FORM* · B-B

*The highly moisture resistant glues used in PlyForm permit multiple re-use of panels (as many as 10 to 15 are not unusual). For the greatest possible panel re-use, however, specify Exterior-type Concrete Form grade of Douglas fir plywood. It has the same B (Solid) faces and the same special ply construction as Plyform, but is manufactured with completely waterproof resin adhesives. Exterior-type Concrete Form panels may be used and re-used until the wood is literally worn away.

Douglas Fir PLYWOOD

LARGE, LIGHT, STRONG *Real Wood* **Panels**

ESCO 9-yard stripping dragline owned by J. Robert Bazley, Inc., working at Logan stripping near Mt. Carmel, Penn.

and still on the job 3 shifts a day...

The *ESCO* dragline bucket shown at the left went into service in April, 1945. As of September 30, 1948, it had —

Operated 7,143 hours.
Moved 1,411,915 yards of original material.

Maintenance cost during this time averaged .00589 cents a yard. This record was made in the anthracite region of Pennsylvania where digging conditions are notoriously severe — *and the bucket is still operating three shifts a day.*

Performance like this is typical of *ESCO* dragline buckets in all parts of the world. It is made possible by sound engineering and bulk-saving construction which provide for:

Clean cutting lip for positive bite
Balance for smooth carrying
Control for exact spotting
Hollow cast arch for greater strength
Streamlined for quick dumping
Manganese steel for all wearing parts
No unnecessary bulk.

Result: More payloads per pass, and more passes per hour

ESCO dragline buckets are made in four types — medium, standard, stripping and heavy duty, in capacities ranging from ⅜ to 20 yards. One of these buckets will do your job faster and easier with less maintenance and "down" time. For specifications and other detailed information, see your nearest *ESCO* representative or fill in and mail the coupon below. Electric Steel Foundry. 2187 N.W. 25th Avenue, Portland, Oregon; 732 Porter Street, Danville, Illinois. Offices in Pottsville, Pa.; Eugene, Oregon; Chicago, Honolulu, Houston, Los Angeles, New York, San Francisco, Seattle, Spokane.

ESCO stripping dragline bucket, with manganese steel parts shown in red.

ELECTRIC STEEL FOUNDRY
2187 N.W. 25th Avenue, Portland 10, Oregon
Please send information on ☐ Medium dragline; ☐ Standard dragline; ☐ Stripping dragline; ☐ Heavy Duty dragline.

Name_____

Address_____ Zone_____

City_____ State_____

ESCO

DRAGLINE and DIPPER BUCKETS

AN AMAZING LUBRICANT

LUBRIPLATE 130-AA

Protects Against Rust and Corrosion

A super grease type lubricant! A marvelous anti-seize compound and a real protector against rust and corrosion. From the standpoint of general utility and diversity of important uses, LUBRIPLATE 130-AA is unequalled. While it is ideal for the heaviest loads, this remarkable lubricant does not cause drag and actually conserves power. Write for a free copy of the LUBRIPLATE Service Hand Book.

LUBRIPLATE DIVISION
FISKE BROS. REFINING COMPANY
Newark 5, N. J. • Toledo 5, Ohio

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MASTER COST-SAVING EQUIPMENT—FOR IMMEDIATE DELIVERY

Gas or Electric Concrete Vibrators (Catalog No. 689)
Hand Tools for operating from all Master Vibrators and BIG-3 (Catalog No. 683)
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Vibratory Concrete Finishing Screed. Sizes 6' to 36' (Catalog No. 596)
"Turn-A-Trowel" for trowelling concrete Sizes 48" or 34" (Catalog No. 685)

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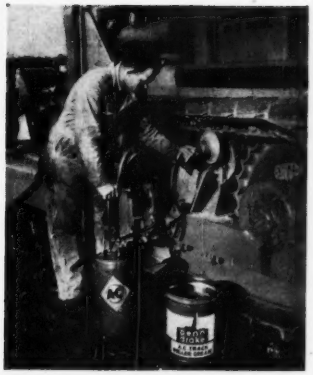
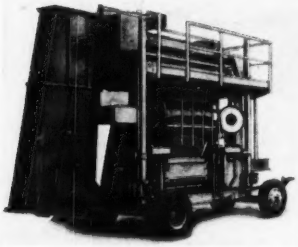
MASTER VIBRATOR COMPANY
DAYTON 1, OHIO

HYDRAULIC POWER TRANSMISSION UNIT—Hydro-Sheave Drive is a hydraulic-conversion device for small electric motors and internal combustion engines in the ¾- to 25-hp. range. Basis of new unit is a Twin Disc small hydraulic coupling. Applications include cranes, hoists, conveyors, winches, compressors. Unit is designed especially for use with V-belt sheaves.—**Twin Disc Clutch Co., Rockford, Ill.**

SMALL-SIZE EARTHMOVER—The Model D Roadster Tournapull, a new, self-loading, one-man-operated, high-speed unit for use with a 9-ton or 7-cu.yd. heaped capacity E-9 Carryall scraper on small yardage projects is powered by 100-hp. diesel or gas engine and travels at speeds up to 25 mph. A feature of this new Tournapull is the complete control of all steering and scraper operations by individual electric motors, eliminating need for power control unit. Another feature is a torque proportioning differential which automatically supplies power to the wheel on the firmest footing. Multiple disk air brakes on four wheels, provide 3,132 sq.in. of braking surface, adding to safe operation. Its ability to turn in a 19-in. radius makes this rig extremely maneuverable. Length, 27 ft. 10¾ in.; width, 8 ft.; height (with cab) 8 ft. 6¾ in.; width of cutting edge, 7 ft.; wheelbase 15 ft. 7⅜ in.; weight, 20,700 lb. Adaptable for general construction work, for grading, maintenance, and drainage of roads and airports; stripping and working off-road and roadside pits; spreading aggregate; leveling areas for building or parking lots. In addition, this one-man utility tool is useful around mines, pits and quarries, railroad, logging sites, industrial plants and counties and municipalities.—**R. G. LeTourneau, Inc., Peoria, Ill.**



SPECIAL LUBRICATING GREASE —For truck wheels, track idlers and support rollers of Allis-Chalmers H-D Series tractors. This grease is marketed under the trade name of Penn Drake A.C. track roller grease. Clings tenaciously and lubricates constantly without separation, despite exposure to weather, moisture and other extreme service conditions. With base of solvent-treated high viscosity index oil, this grease also contains an anti-oxidant.— **Pennsylvania Refining Co., 2686 Lisbon Road, Cleveland 4, Ohio.**



PORTABLE ASPHALT PAVING PLANT with capacity of 30 to 40 tons per hr. of bituminized aggregate is said to be especially suitable for out-of-the-way road jobs where long hauls are impractical and the size of the job does not warrant permanent installation of a larger plant. The Madsen 1,000-lb. plant can be profitably moved to jobs as small as 1,500 tons and yet, can handle jobs as large as 7,000 to 10,000 tons. Easy to erect, this portable plant is equipped with the Madsen-patented jack legs on all four corners, making it possible to erect the plant to its full operating height in 2½ to 3 hr. without aid of a crane, gin poles or skids. Electric motor or diesel engine operates all parts of the plant including the cold-stone elevator, dust elevator and screw, vibrating screen, pug-mill mixer and pressure-injection pump. Lower half of elevator is removed for travel. **—Madsen Iron Works, Inc., 5631 Bickett St., Huntington Park, Calif.**

Contractors are cutting costs with

SCOOT-CRETE

TRADEMARK

OPERATING a Scoot-Crete is as easy as driving a car. It will run anywhere, even on loose sand, without special roads or runways. The six horsepower motor and four speed transmission give it plenty of power for climbing grades. It weighs only 1000 pounds and can be used for scaffold and second and third story work. The Scoot-Crete steers by a single tail wheel and is easily maneuvered in tight places. It will turn completely around in its own length.

The Scoot-Crete is especially useful for pouring floors and slabs. The edge of the bucket is only 39" high and can be loaded at most concrete mixers without building a pit or special platform. Dumping is easily controlled from the driver's seat.

The simple construction and few moving parts of the Scoot-Crete make maintenance an easy matter. Long life is assured by the sturdy welded box frame of heavy steel plate. Heavy duty power and transmission units are built to withstand rough service and hard usage.

PUT SCOOT-CRETE TO WORK FOR YOU!

Put the money-saving Scoot-Crete to work for you. It will save its cost in a very short time.

For complete information — Contact your nearest Scoot-Crete dealer or the factory.

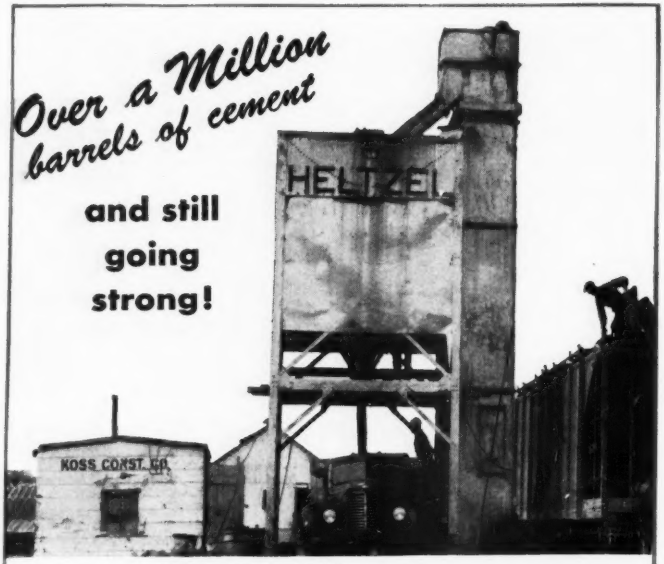
GETMAN BROTHERS, MANUFACTURING DIVISION

Manufacturers of Materials Handling Equipment

SOUTH HAVEN, MICHIGAN

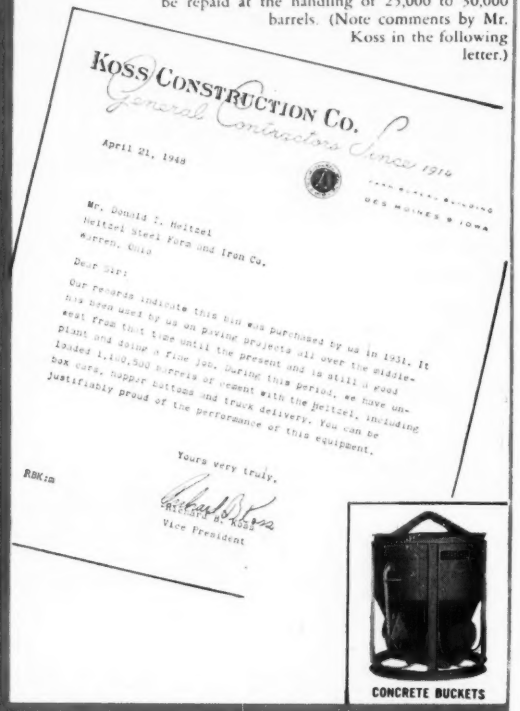
Over a Million barrels of cement

and still going strong!



VETERAN HELTZEL PLANT HAS REPAID ITS COST 42 TIMES OVER IN 17 YEARS . . .

• 1,160,500 barrels of cement have been unloaded by this plant. In 1931, time studies indicated the plant cost would be repaid at the handling of 25,000 to 30,000 barrels. (Note comments by Mr. Koss in the following letter.)



KOSS CONSTRUCTION CO.
General Contractors Since 1914
1606 BANKERS BUILDING
DES MOINES 9, IOWA

April 21, 1948

Mr. Donald T. Heltzel
Heltzel Steel Form and Iron Co.
Warren, Ohio

Dear Sir:

Our records indicate this unit was purchased by us in 1931. It has been used by us on paving projects all over the middle-west from that time until the present and is still a good plant, and doing a fine job. During this period, we have unloaded 1,160,500 barrels of cement with the Heltzel, including box cars, hopper bottoms and truck delivery. You can be justifiably proud of the performance of this equipment.

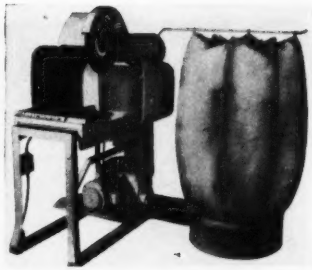
Yours very truly,

RBK:m

Richard B. Koss
Vice President

CONCRETE BUCKETS

HELTZEL STEEL FORM & IRON CO.
WARREN, OHIO · U. S. A.

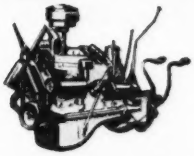


DUST-FREE MASONRY SAW—New dry-cut Fireproofer masonry saw eliminates dust hazard by a powerful vacuum which collects dust particles from brick or tile as well as at rotating saw blade and filters dust-laden air through filtering bag. Both saw blade and vacuum are powered by individual 1½-hp. 60-cycle ac., single-phase electric motors. Machine is an all-steel welded unit, with adjustable cutting table.—**Martin Fireproofing Corp., P. O. Box 27, Buffalo 17, N.Y.**

EXTENSION HAND LIGHT—Many safety features allow its use without danger in high voltage work or submerged in salt water. All surface areas are of non-metallic materials. Neogard hand light is only 1¾ in. in diameter, 12½ in. long and weighs 4½ oz. Special triple seal makes lamp completely waterproof. Pyrex lamp used is resistant to welding spatters and sub-zero weather. Tungsten filament is heavy braced for rough handling. Non-metallic swivel hook holds light in convenient position when in use.—**Neoline, Inc., 124 W. 4th St., Los Angeles 13, Calif.**

Here's what "Job-Rated" means to contractors...

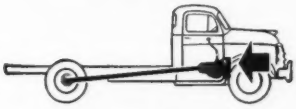
the Right POWER



"*Job-Rated*" means your truck will have the right power.

For maximum performance, with economy, it will have the right one of 7 great Dodge truck engines. You save money on gas, oil, and upkeep.

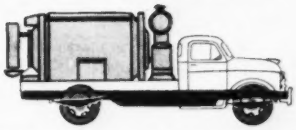
...the Right DRIVE LINE



"*Job-Rated*" means your truck will have the right driving units: Clutch, transmission, rear axle, gear ratio . . . and other load-*moving* units.

You get more efficient performance. Your truck stays *on the job*—longer.

...the Right LOAD SUPPORT



"*Job-Rated*" means the right support for your load. Frames, axles, springs, bodies, wheels and tires—all are the right size for the weight of your truck . . . and the load it hauls. Result: Your truck "stands up," and maintenance costs are low.

... in short, the Right truck to fit your job!

To get a "*Job-Rated*" truck, see your Dodge dealer.

Tell him three things: (1) The weight of your loads; (2) the type and size of body you need; (3) your grade and speed requirements.

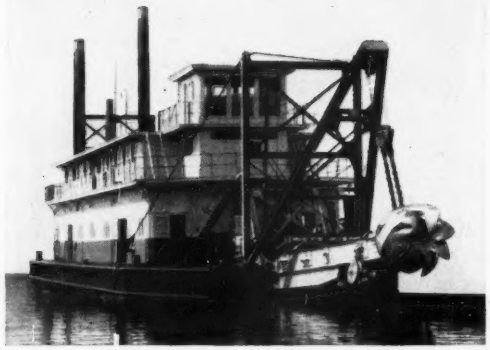
From 248 basic chassis models, your Dodge dealer will specify a "*Job-Rated*" truck that fits your job. Every unit, from engine to rear axle, will be "*Job-Rated*" . . . engineered and built for your loads.

Such a truck will save you money . . . when you buy it, every mile you use it. And remember . . . only Dodge builds "*Job-Rated*" trucks!

FOR THE LOCATION OF YOUR DODGE DEALER, CONSULT YELLOW PAGES OF YOUR PHONE BOOK

DODGE
"Job-Rated" Trucks
FIT THE JOB . . . LAST LONGER

SLASH YOUR DREDGING COSTS with ELLICOTT HYDRAULIC DREDGES



● Ellicott is the only organization with the experience and equipment to build any size dredge from 6 to 30 inches. Shown is a 16-inch, deep channel Diesel-powered Dredge.

WHATEVER your requirements, whether dredging a river channel, filling a swamp, or producing sand and gravel, your cost per cubic yard of material goes way down with an Ellicott Hydraulic Dredge.

That's because each Ellicott Dredge, from 6-inch to 30-inch machines, is designed to meet your needs. It has the right cutting head for material to be worked, the proper pump for length of the line to the disposal area—completely engineered from stem to stern to operate at the lowest cost.

Ellicott has built hydraulic dredges since 1885 and is the only organization in the world devoted exclusively to hydraulic dredge construction. When you specify Ellicott you get operating economy, because all dredge components are designed, built and delivered by Ellicott—all under one contract!

No matter if you wish to assembl your dredge from Ellicott components and plans, or want the dredge delivered complete, Ellicott is prepared to submit estimates without obligation. Write today for full information on Ellicott Dredges.

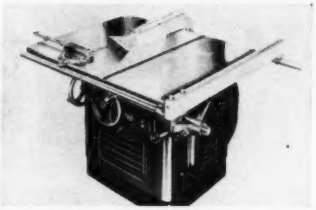
- **COMPLETE LINE** from 6 to 30 inch equipment for all hydraulic dredging requirements.
- **UNDIVIDED RESPONSIBILITY**—Designed, built, delivered under one Ellicott contract.
- **63 YEARS OF EXPERIENCE** with hydraulic dredges.
- **PROVED PERFORMANCE** in the U. S. A. and abroad.

ELLICOTT HYDRAULIC DREDGES

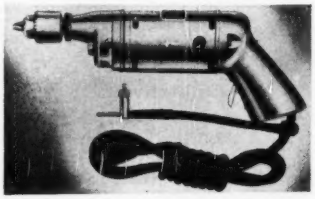
any type—any size—any service

ELLICOTT MACHINE CORPORATION

1605 Bush Street, Baltimore, Maryland, U. S. A.



TILTING ARBOR SAW—Equipped with 12-in. blade, saw is capable of cutting through 4⅛-in. stock on a square cut and of splitting a 4-ft. panel into two 24-in. parallel sections. Used with either a 3- or a 5-hp. motor, saw can be set for speeds of 1,600, 2,400, 2,600 rpm., or more. Blade can be tilted to right at full 45-deg. angle at which it can cut stock 2⅞ in. thick. Arbor is carried on ball bearings. Table is 38 in. long and 4 ft. wide.—**Delta Mfg. Division, Rockwell Mfg. Co., 600 E. Vienna Ave., Milwaukee 1, Wis.**



PORTABLE ELECTRIC DRILL—Lightweight 1¼-in. drill has comfortable pistol-grip handle and Cutler-Hammer trigger switch and Jacobs key-type chuck. Air-cooled motor is of universal type, a.c.-d.c. 110-115 v. Drill is 11¼ in. long over all and weighs 3½ lb. Capacity in steel is ¼ in. and in hardwood ⅜-in. dia. Full-load speed is 600 rpm. and no-load speed, 1,400 rpm. Tool is identified by designation Model 250. —**Portable Electric Tools, Inc., 255-259 W. 79th St., Chicago 20, Ill.**

ANGLE-DOZER—Built on all-welded steel chassis, "Handy-Andy" angle-dozer powered by gasoline engine is 3½ ft. in height and 7 ft. long over-all. Machine has three speeds forward and a 6-ft. turning radius. Steering, brake and clutch are hydraulically controlled separately off pump on mainshaft. Tilting front axle and hydraulic-power front wheel steering enable machine to maneuver into narrow areas. Wheels are rubber-tired with heavy tractor tread.—**Central Mine Supply Co., Mount Vernon, Ill.**

LINK-BELT SPEEDER SERVICE

PROTECTS YOUR INVESTMENT

GEARED TO ASSURE FULL PRODUCTIVITY AT ALL TIMES

Keeping every Link-Belt Speeder Shovel-Crane in tip-top operating condition is one of the main objectives of Link-Belt Speeder and its far flung distributor organization. In every principal city in United States and Canada, and in foreign lands, a stock of parts and men trained in the servicing of Link-Belt Speeder products are in readiness to meet the needs of the user wherever located.

Zack Laws, who has had 25 years' experience as an operator, recently made this brief, to-the-point comment on the K-370: "It's easy to handle. It's dependable. It gives greater quantity output because it's stronger on the crowd and faster on the swing compared with other machines."

Link-Belt Speeder advanced engineering, honest construction and quickly available service add up to more profitable machine hours and greater returns on your investment. Your distributor will gladly show you the Link-Belt Speeder line of shovels, cranes and draglines, up to 3 yard capacity and explain the features which contribute to their outstanding performance. For instance—

The Link-Belt Speeder line includes twenty-five models, ranging up to 3 yard in capacity, some wheel-mounted, some on crawlers. In every size and type, Link-Belt Speeder advanced engineering is clearly seen in every detail, making for freer action, lower upkeep, long-life and profitable operation.

•

See our distributor today. Let him show you a size and type to meet your exact needs. Or write for latest catalog.

•

SPEED-O-MATIC CONTROL

"Speed-O-Matic" hydraulic control permanently eliminates all "lost motion" — actuates clutches faster and more smoothly. Operators will tell you the "Speed-O-Matic" control relieves manual effort and there is little or no fatigue after a good day's work. Get the facts today—find out how you, too, can greatly increase your output.

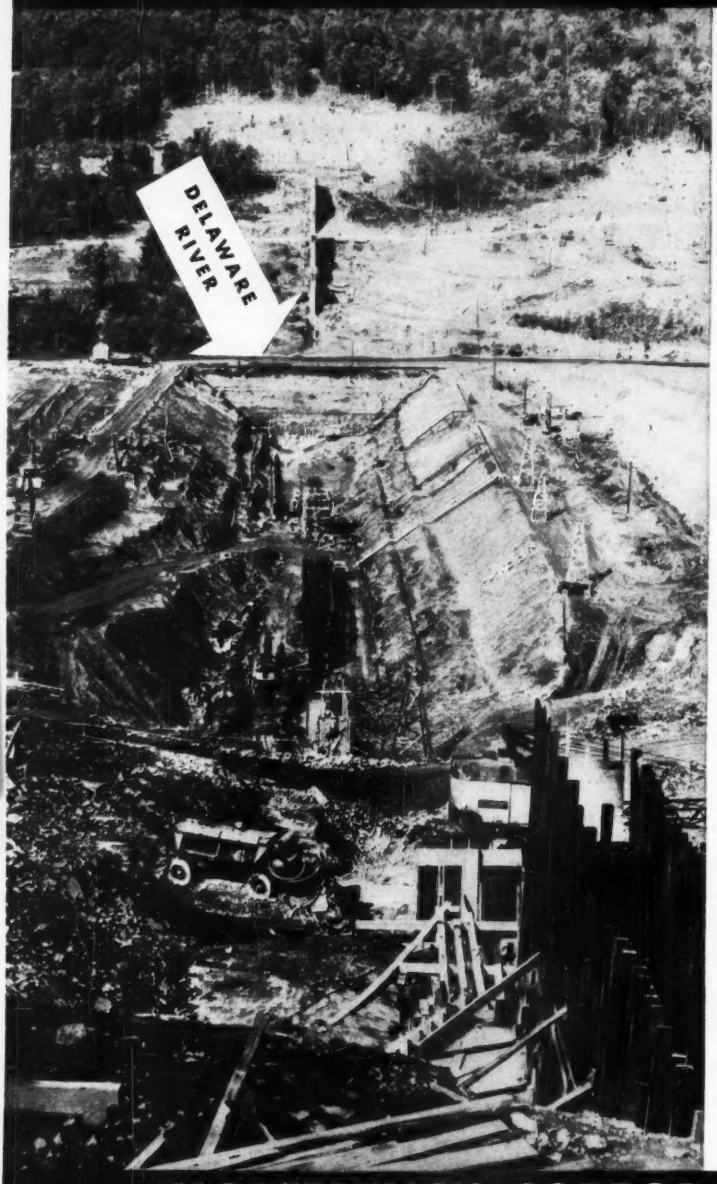
11.328

LINK-BELT SPEEDER

LINK-BELT SPEEDER CORPORATION
CEDAR RAPIDS, IOWA

Builders of the Most Complete Line of
SHOVELS-CRANES-DRAGLINES

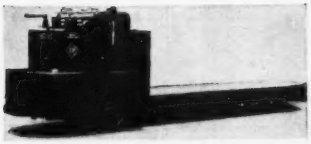
Speaking of dry jobs—



Here's
DOWNSVILLE DAM
in New York State
where a
MORETRENCH
WELLPOINT
SYSTEM
Controls
60'
of Water!

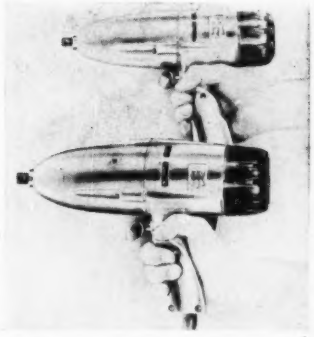
MORETRENCH CORPORATION

90 West St. New York 6 | 3037 S. Christiana Ave. Chicago 23, Illinois | 7701 Interbay Blvd. Tampa 9, Florida | 315 W. 25th St. Houston 8, Texas | Rockaway, New Jersey



LOW LIFT INDUSTRIAL TRUCK—New power industrial truck with platform 12 ft. long and 32 in. wide weighs 8,000 lb. and has load-carrying capacity of 20,000 lb. Top of platform in lowered position is 11½ in. above floor level, and maximum height elevated is 17 in. Platform is raised by two hydraulic cylinders. Platform is mounted over four sets of wheels. Truck is all-electric or gas-electric powered.—**Elwell-Parker Electric Co., Cleveland, Ohio.**

HARD-FACING ELECTRODES—Two new tubular type shielded-arc electrodes designated as Faceweld No. 1 and Faceweld No. 12. No. 1 deposits a chromium carbide type alloy surface and is used for hard facing parts of plain carbon, low alloy or manganese steel; it is designed to resist severe abrasion as well as moderate impact. No. 12 is of same type but is designed for use where hard-faced surface must withstand extremely severe abrasion as well as some impact. Deposit is harder but not as tough as that of No. 1. Both electrodes operate on either alternating or direct current. Both are available in 14-in. lengths in 5/16 and 3/16-in. diam. sizes packed in 10-lb. containers.—**Lincoln Electric Co., Cleveland 1, Ohio.**



ELECTRIC IMPACT TOOL—New model is rated to run and remove nuts up to ⅝-in. thread size, drive and remove studs, extract broken tap screws and studs, apply and remove machine screws of all kinds, run wire brushes, drill steel or masonry. Has reversible motor operating on ac. or dc. 110- or 220-v. current. Tool is 12⅛ in. long and weighs 9 lb., 13 oz. This impact tool is identified as Model 8U.—**Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y.**

WORK NON-STOP THROUGH COLD WEATHER

with temporary enclosures of

VIMLITE*

CELANESE* PLASTIC GLAZING

Celanese Vimlite—tough flexible plastic glazing—stapled to window openings or fitted wood frames produces a weather-tight, brightly lighted interior.

With Vimlite temporary enclosures, contractors can work right through the coldest weather. Vimlite holds heat in, keeps cold out.

USE VIMLITE OVER AND OVER

Vimlite is wire reinforced and long lasting . . . can be used over and over . . . pays for its cost in no time . . . means better work and fewer man hours lost.

You can get Vimlite in 28" and 36" wide rolls—up to 100′ long. If your hardware dealer or building materials supplier can not supply you return the coupon below.

*Reg. U. S. Pat. Off.

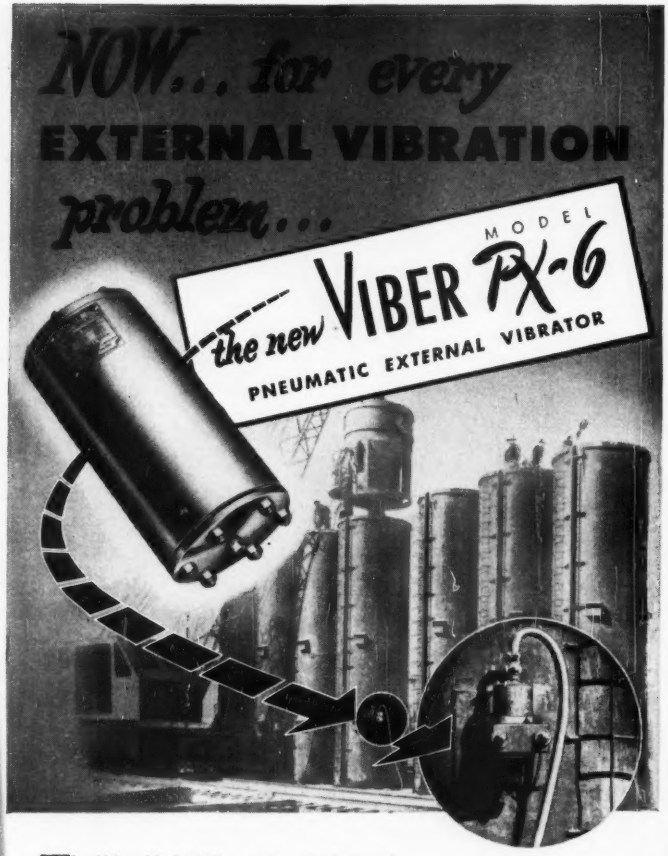
Celanese Corporation of America, Dept. J,
180 Madison Avenue, New York 16, N. Y.

Please tell me where I can obtain Vimlite.

Name_____

Address_____

City_____ State_____



The Viber Model PX-6, primarily designed for concrete pipe manufacture, has since proven equally effective in other fields such as in the manufacture of concrete products, and in the handling of dry materials.

5 Reasons for Outstanding Versatility in the PX-6

1. Operates at desired amplitude over a wide range.
2. Operates at desired speed over a wide range.
3. Produces marked improvement in the manufacture of concrete pipe from the smallest to the largest.
4. With proper balance of amplitude and speed, greatly increases the life of the forms.
5. May be mounted at any angle.

SPECIFICATIONS

SIZE: Diameter 5½ inches; length 12 inches.

NET WEIGHT: 40 pounds.

ECCENTRIC WEIGHT: Available over a wide range of sizes.

VIBRATING SPEED: Desired speeds are obtained by regulation of the air pressure.

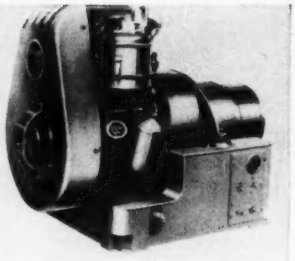
POWER: Dependable vane type pneumatic motor.

COOLING: Cooled by circulation of exhaust air through the housings.

Mounting Clamp, Carrying Handle
Available as extra equipment.

For complete details of the VIBER Model PX-6 Pneumatic *External* Vibrator—or assistance on any concrete placement problem involving *internal* vibration—*write or wire:*

VIBER CO. CONCRETE VIBRATORS
EST. 1931 Dept. 19, 726 South Flower Street · Burbank, California

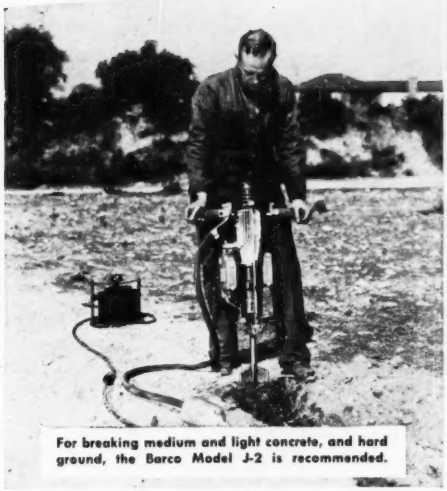


DIESEL - ELECTRIC POWER PLANTS—Two new lines include self-contained air-cooled and water-cooled units. One-cylinder, four-cycle diesel engine powers the 2,500-watt air-cooled plant which is characterized by its compactness, 10½ cu. ft. Electric cranking of engine is made possible by an automatic compression release. Accessories include two heavy-duty 6-v. starting batteries connected in series, two flexible fuel lines, hand crank and one extra fuel injection pump, holder and nozzle. The water-cooled plants are available in 10,000- to 35,000-watt capacities and are inclosed in sheet-steel housings with removable side panels. Both models of plant are adaptable to a wide range of portable or stationary jobs.—**D. W. Onan & Sons, Inc., 43 Royalston North, Minneapolis 5, Minn.**

PORTABLE FIRE EXTINGUISHER—New 16-oz. Hero portable pressurized fire extinguisher is simple to operate by pulling trigger and aiming 18-ft. pressurized stream at fire. Fluid contains 90 percent carbon tetrachloride, 10 percent other chemicals, with carbon dioxide as propellant. Puts out gasoline, fuel oil, paper, grease, electrical and all types of incipient fires.—**Bostwick Laboratories, Bridgeport 5, Conn.**

Finish Jobs the Fast, Easy Way with BARCO

For heavy pavement breaking, the Barco Model H-6B is recommended. It is the fastest, most powerful gasoline hammer ever developed.



For breaking medium and light concrete, and hard ground, the Barco Model J-2 is recommended.

A Barco Portable Gasoline Hammer is a husky powerhouse that can lick jobs of breaking, drilling and driving. Barco speeds up work schedules...you don't have to wait for heavy equipment to be released. Barco can handle intermittent and scattered jobs, avoiding costly carrying charges on idle equipment. Barco will frequently save enough on the first job so that you will *own* it for the next job. Write Barco Manufacturing Company, 1812 Winnemac Avenue, Chicago 40, Illinois. In Canada: The Holden Co., Ltd., Montreal, Canada.

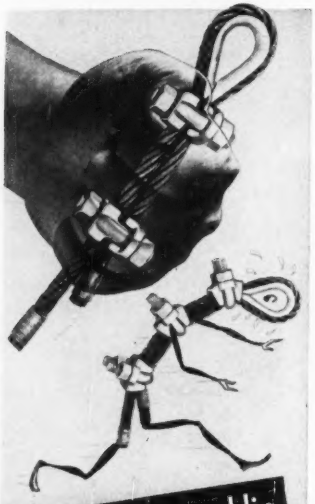
BARCO

FREE ENTERPRISE—
THE CORNERSTONE OF AMERICAN PROSPERITY

PORTABLE GASOLINE HAMMERS

BREAKING • DRILLING • DRIVING • TAMPING

BANISH YOUR WIRE ROPE PROBLEMS



...With The Laughlin "FIST-GRIP" SAFETY CLIP

Won't Crimp or Crush . . . rope lasts longer.

Simple, easy to put on . . . saves time, manpower.

100% Foolproof . . . can't go on backwards.

Super Grip . . . two clips do the work of three U-Bolts.

Extra Strength and Safety . . . clip and bolts drop-forged.

Distributed through mine, mill and oil supply houses. Write for Catalog 140 . . . up-to-the-minute data on industrial fittings.

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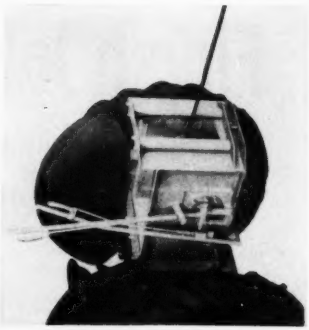
Dept. 1, Portland 6, Maine

LAUGHLIN

THE MOST COMPLETE LINE OF DROP-FORGED WIRE ROPE AND CHAIN FITTINGS

TRACTOR WINCH — Single-drum unit has maximum capacity of 7,500 lb. single-line pull on first layer of cable. Adaptable to many industrial wheel-type tractors, it can be easily installed or quickly removed when the power takeoff shaft is required for other attachments. Fairlead rollers allow a sharp off-lead of the cable to either side and permit easy moving of materials in tight spots. Winch is equipped with a hand-operated contracting band brake. A drawbar built into winch frame allows tractor to perform regular towing jobs without removal of winch.—**American Hoist & Derrick Co., 63 S. Robert St., St. Paul 1, Minn.**



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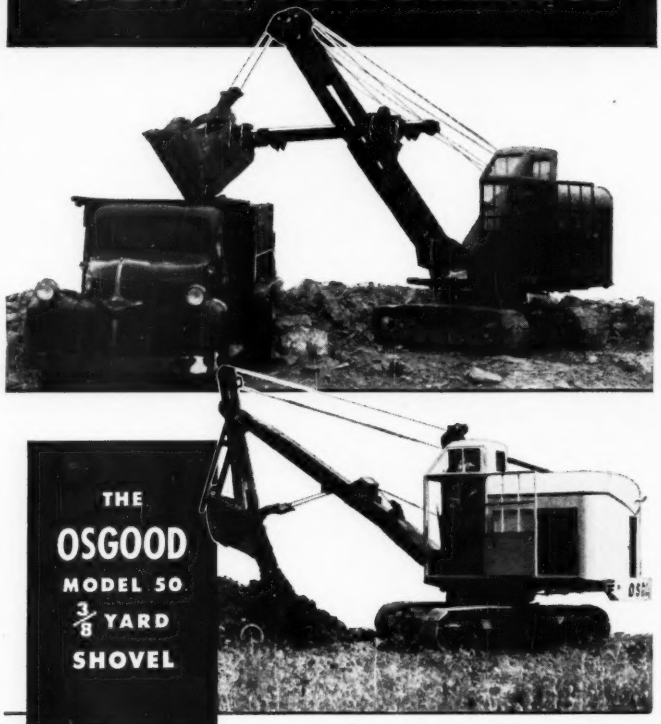

THE OSGOOD MODEL 50 3/8 YARD SHOVEL

A rugged, versatile, and dependable performer at low cost—that's the OSGOOD Model 50. Its simplicity of operation, easy maneuverability, and full convertibility to all attachments provide outstanding performance in the construction, road building, pit and quarry and industrial fields.

Available as shovel, crane, hoe, dragline, and clamshell. Equipped with OSGOOD patented wire rope crowd and automatic retract.

Write for complete details.

POWER SHOVELS • CRANES • DRAGLINES • CLAMSHELLS • BACKHOES • PILE DRIVERS

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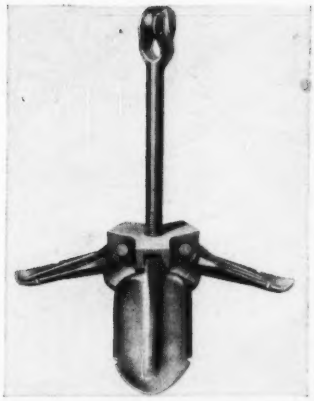
DIESEL, GASOLINE OR ELECTRIC POWERED • ⅜ TO 2½ CU. YD. • CRAWLERS & MOBILCRANES



EXPANDING ANCHOR — New Albion-Dillon cone-slant expanding type anchor made of high-strength malleable iron has three blades that extend deeply into undisturbed earth to provide maximum holding power. Anchor will resist pull of 46,000 lb. Anchor is installed by dropping into hole up to 6 in. dia. and delivering a few blows with a spud to the anchor top to expand the blades which advance outward and upward to full length and become locked in position. Models are available for three hole sizes, 3, 4 and 6 in.—**Albion Malleable Iron Co., Albion, Mich.**

FLEXIBLE BAND PIPE CLAMPS —Flexible steel band repair clamp snaps over pipe to cover leaks in pipe lines. Inner sleeve can be turned around inside clamp shell in order to position clamp for easy tightening regardless of location of leak.—**Morris Coupling & Clamp Co., 27 Duncan Ave., Ellwood City, Pa.**

7 YEARS DEVELOPMENT

ON FIELD TESTS IN EVERY TYPE OF PROSPECTING AND STRIPPING THROUGHOUT THE WORLD.

The Parmanco Single Speed Transmission Drill is designed to meet the requirements of the general prospecting field where it is not necessary to drill in solid limestone. Special sliding frame permits drilling and pulling of augers without moving drill. New design of chuck eliminates all hand operation in raising power plant. Recommended for 50 to 60 feet with four and one-half inch equipment. Under favorable conditions it is being used to greater depths.

PARIS MANUFACTURING COMPANY

PARIS, ILLINOIS

TAKE this MultiFoote Paver with its Elevating Boom out of this picture and run over the methods and equipment you would have to use to accomplish the same thing.

Your MultiFoote, either the Singlemix 34-E Single Drum or the Duomix 34-E Double Drum Paver equipped with the MultiFoote Elevating Boom is a high-speed mobile construction tool. It will travel in under steel or false work. It will place concrete 23 feet up. Its MultiFeed Bucket will deliver either a shovelful, a wheelbarrowful or the whole load and is controlled from the operator's platform.

With the MultiFoote you are equally well equipped to bid on general contracts or road work profitably. Contractors will find that they can, in many cases, eliminate trucks, shooting towers, cranes and other expensive equipment and should give consideration to the MultiFoote and the Elevating Boom on their future jobs. We will be glad to give you details.

...OR A PAVER!

THE FOOTE COMPANY, INC.
Subsidiary of Blaw-Knox Co.
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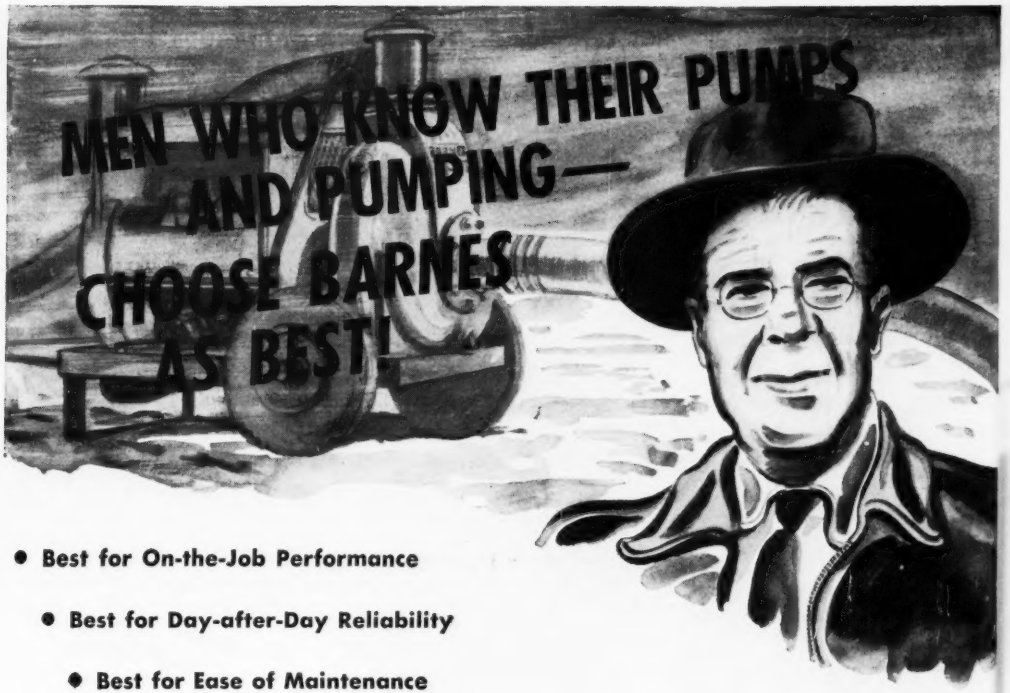
MULTIFOOTE

Duomix 34-E Double Drum • Singlemix 34-E Single Drum

A BLAW-KNOX PRODUCT — FROM FORMS TO PAVER TO FINISHER ALL YOUR PAVING EQUIPMENT IN ONE PACKAGE from BLAW-KNOX



- **Best for On-the-Job Performance**
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- **Best for Lower Operating Costs**
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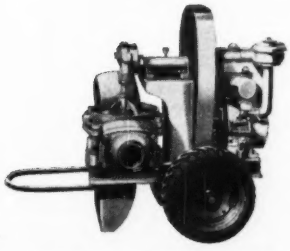
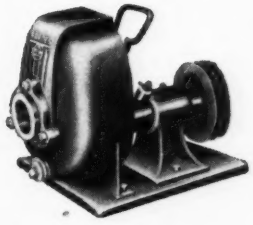


Lift-and-Force Single Diaphragm Pump
Lighter in Weight, 300 lbs. More Compact for Faster Handling. Simplified Design for Easier Servicing.



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Driven from Power Take-Offs of Tractors, Existing Gas or Diesel Engines Directly Coupled to Electric Motors.

Barnes "33,000 for 1" Automatic Centrifugal Pumps
Pumps 33,000 gallons of liquid for only 1 gallon of gas. Capacities from 3,000 to 90,000 G.P.H.

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Please send me descriptive literature on pumps marked below:

..... Gasoline-engine driven automatic centrifugals
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Name .....
Firm .....
Address .....
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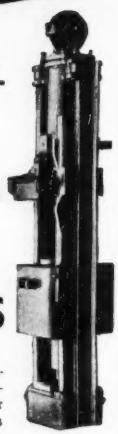
ALWAYS IN SHAPE

WARRINGTON-VULCAN

SINGLE-ACTING STEAM

PILE HAMMERS



• Like a fighting champion, this rugged pile hammer is always ready for tough ones. It handles wood, steel or concrete piles of any types on job after job, year after year, with a minimum of mechanical difficulty. This proven power and durability assures you speed in pile driving and a saving in maintenance and mechanical costs.

Operating at medium steam pressure, with rapid, regular continuous action, the Warrington-Vulcan sinks pile after pile with a moderate frequency of low velocity blows from a relatively heavy ram.

Write for complete details on this Single-Acting steam pile hammer — proved in action since 1887.

VULCAN IRON WORKS
Since 1852
331 North Bell Avenue
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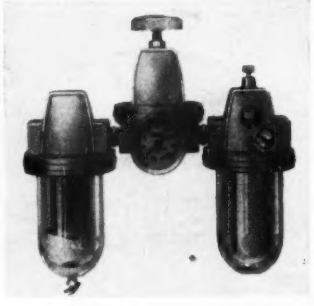
ELECTRIC IMPACT WRENCH—Rated at $\frac{3}{4}$-in. thread diameter, portable electric impact wrench will tighten or remove either left- or right-hand nuts, bolts and cap screws. Reversing switch allows tool to be used either for driving or for removing fasteners. There is little or no tendency for the tool to twist in the operator's hand. Rotary hammering action drives nut or bolt to maximum tightness.—**Black & Decker Mfg. Co., Towson 4, Md.**

METAL RUSTPROOFING AGENT—Kromover touch-up pencil is applied at 450 deg. F. with oxyacetylene, air-acetylene or city gas flame to rustproof metal, re-galvanize spots and for any tinning operation. Only preparation necessary is wiping off oil and dirt from metal surface with clean rag. Can be used in field by repair or installation crews.—**All-State Welding Alloys Co., Inc., 96 W. Post Road, White Plains, N.Y.**



COMPRESSED AIR CONDITIONING UNIT—"Air Warden" filter, pressure regulator and lubricator is a compact assembly that cleans, purifies air, controls pressure and adds atomized oil for internal lubrication of moving parts in air-powered equipment. Weighing 10 lb., the complete unit occupies only 12 in. of space in the air supply line. Operation is visible through transparent bowl with blow-down cock for easy self-cleaning upper line pressure. Complete air conditioning unit is now offered in standard $\frac{3}{4}$- and $\frac{1}{2}$-in. sizes.—**Hannifin Corp., 1101 S. Kilbourn Ave., Chicago 24, Ill.**

Increase Magnetic Cable Life with the

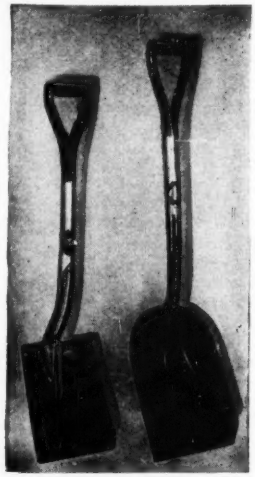
RUD-O-MATIC

Combination Magnet Reel and Tagline

Here's a new, foolproof, magnet reel that operates on a coil spring principle for tension. Built as a combination unit with the Rud-O-Matic Tagline, both the magnet reel and tagline drums revolve together. The tagline cable is attached to the magnet with sufficient tension to steady and the electric magnet cable is then attached with sufficient slack allowed. As both drums revolve both cables are fed back and forth in the same relation as originally set, thus eliminating any chance of the electric cable being pulled apart or being jerked loose from its connections. The unit is thoroughly insulated throughout and comes equipped with a tagline cable and lead sheaves. Available in 5 models to fit the various boom sizes. Immediate deliveries from your equipment dealer—or write—

McCAFFREY-RUDDOCK Tagline Corporation

2131 East 25th St., Los Angeles 11, Calif.



BLADE EDGES
GUARANTEED SPLIT-PROOF

INGERSOLL SHOVELS
"The Borg-Warner Line"

Write for Catalog and Prices
INGERSOLL STEEL DIVISION
BORG-WARNER CORPORATION
New Castle, Indiana
Plants: New Castle, Ind.; Chicago, Ill.; Kalamazoo, Mich.

TOUGH JOBS MOVE FASTER with GM DIESELS

Mammoth O'Sullivan Dam (formerly called Potholes Dam) took more than 9 million cu. yds. of earth and rock fill. Toughest hauls on this rugged project were assigned to 22 GM Diesel-powered Euclid bottom dumps in the fleet owned by contractors Lytle, Amis and Green. Six-mile round trips—with half the distance on an 8% grade—were completed in an average of 23 minutes, including loading time.

ALL OVER the country you see General Motors Series 71 2-cycle Diesels taking over the hard jobs and setting records for speedy completions.

In this case, on the 8% down-grade at O'Sullivan Dam, *braking capacity* of the engine was just as important to the contractors as "power at every downstroke." Full compression braking makes the GM Diesel powered "Eucs" easier on brakes and linings.

These 2-cycle Diesels also deliver high torque that gives trucks and tractors fast get-away and smooth up-grade pull even with a punishing load.

Add these advantages to their low fuel costs and their exceptional dependability, and you have some of the reasons contractors everywhere are saying, "We pick GM Diesels for our toughest assignments."

Before you specify power for any equipment, get all the facts. Call your local GM Diesel dealer, or write us direct.

DETROIT DIESEL ENGINE DIVISION

SINGLE ENGINES · Up to 200 H.P. **DETROIT 28, MICHIGAN** MULTIPLE UNITS · Up to 800 H.P.

GENERAL MOTORS

DIESEL BRAWN WITHOUT THE BULK

GM GENERAL MOTORS DIESEL POWER

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SPELLS SECURITY!

FOR OVER 35 YEARS THE THORO SYSTEM HAS BEEN SOLVING WATER PROBLEMS WITH MASONRY—

WATERPLUG to stop the leaks

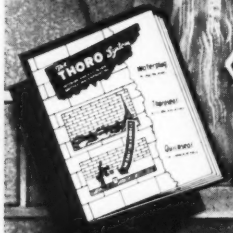
THOROSEAL fills and seals surface

QUICKSEAL for beautiful finish

Never before has the masonry business been so big, and never before have the problems accompanying it been so great.

Today, when masonry starts sweating or springs a running leak, The THORO System products are brought on the job to immediately correct the situation. In 35 years, these products have been gaining a nationally-known name.

No wonder the old-time contractor will always specify this time-proven way of correcting masonry problems. It's the only sure way!! Order through your builder and contractors supply dealers.



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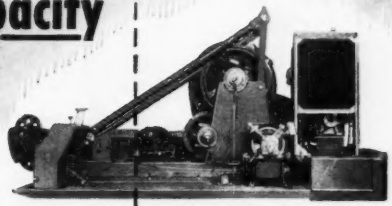
BOX X, NEW EAGLE, PENNA.

TRAVEL-MIX PLANT—A highly efficient new mixing chamber combined with carefully engineered details are features of this new one-pass traveling mixer. Its capacity is 600 to 750 tons per hr. for emulsion or cement stabilization and bituminous road mix, and for soil blending 1,000 cu.yd. per hr. Self-powered and with complete hydraulic one-man control, it can be fitted to purchaser's tow-tractor or is offered with a tractor, as illustrated. Positive control of all ingredients, with easily read dials, assures accurate proportioning.—**Gardner-Byrne Construction Co., Inc., 649 S. Olive St., Los Angeles 14, Calif.**

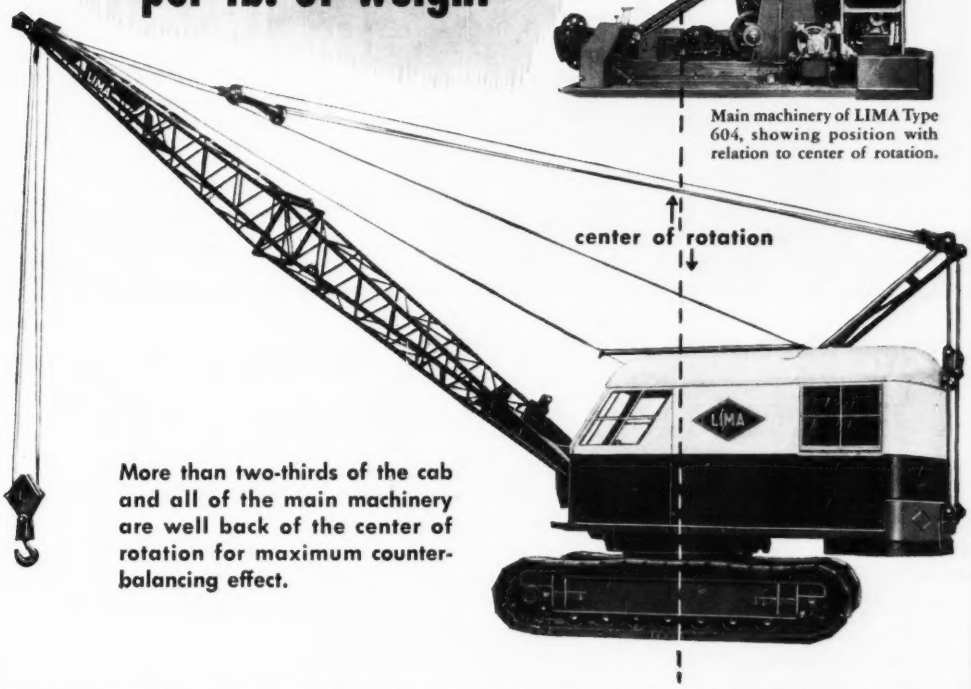
CONCRETE FLOOR ENAMEL — New alkali-resistant floor enamel called Colorfloor XX, is recommended for painting basement floors and other concrete floors on or below grade so long as no hydrostatic pressure exists. Applied to dry concrete floors two coats of rubber-base enamel will protect against dampness. Enamel brushes on easily and dries quickly. Furnished in colors that include red, medium gray and dark green.—**Tremco Mfg. Co., 8701 Kinsman Road, Cleveland, Ohio.**

PORTABLE ELECTRIC HAND LAMP—Lamp with 6-in.-dia. head of chromium-plated 20-gage steel with triple-silvered reflector throws powerful 2,000-ft. beam. A built-in charger plugs into any 110-v., ac. circuit to make recharging the battery easy. Spillproof rechargeable battery with acid-proof plastic case does not leak whether lamp is held upside down, sideways or in any other position. Head has swivel attachment vertically with 170-deg. range. Charge indicator eliminates guesswork on condition of battery and does away with hydrometer tests.—**U-C Lite Manufacturing Co., 1050 W. Hubbard St., Chicago 22, Ill.**

Why the LIMA Type 604 develops the greatest capacity per lb. of weight



Main machinery of LIMA Type 604, showing position with relation to center of rotation.



More than two-thirds of the cab and all of the main machinery are well back of the center of rotation for maximum counterbalancing effect.

● The LIMA Type 604 shovel, crane and dragline is engineered to produce greatest capacity with minimum weight. This is achieved by placing as much weight as possible *behind* the center of rotation—eliminating the need for excessive counterweight. Hook rollers on which the machinery base revolves eliminate strain from the center pintle—permitting continuous, safe operation at full capacity.

The simple, compact design of the main machinery, using the fewest number of shafts to accomplish the various operations, further contributes to efficient, trouble-free service.

These are only a few of the features which make the LIMA 604 a favorite with owners and operators. The Lima Line includes shovels ¾ to 6 yards, Cranes 13 to 110 tons and Draglines variable.

It will pay you to consult your nearest Lima Sales Office or representative before you buy your next shovel, crane or dragline. Offices in principal U.S. cities.

Lima Shovel and Crane Division

LIMA, OHIO

LIMA HAMILTON CORPORATION

OTHER DIVISIONS: *Lima Locomotive Works Division; Niles Tool Works Co.; Hooven, Owens, Rentschler Co.*

The **ROCKMASTER** Blasting System Holds Down Costs In Spite of Rising Expenses!

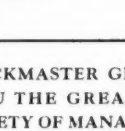
In quarries, mines, stripping operations, and on construction projects the cost of drilling, labor, and supplies has increased—but *over-all* costs have been knocked down through the use of the ROCKMASTER Blasting System!

By switching to ROCKMASTER, one limestone quarry effected a reduction of more than 50% in drilling and dynamite costs! Now, instead of drilling on 4-foot centers, holes are spaced on 8-foot centers—sometimes even greater. Breakage is exceptionally good . . . objectionable noise and vibration has been cut to a minimum. This is not an isolated case! More and more users of explosives are using ROCKMASTER to get better breakage . . . save wear and tear on equipment . . . cut *over-all* costs.

When Atlas pioneered ROCKMASTER, it introduced a new concept of blasting. ROCKMASTER is a blasting *system* based on the right explosive and method of loading . . . the proper spacing of holes . . . the selection of the right millisecond delays—all based on the kind of rock being blasted.

Call in your Atlas representative. He'll be glad to show you how the ROCKMASTER Blasting System can be adapted to *your* job.

ROCKMASTER GIVES YOU THE GREATER SAFETY OF MANASITE DETONATORS



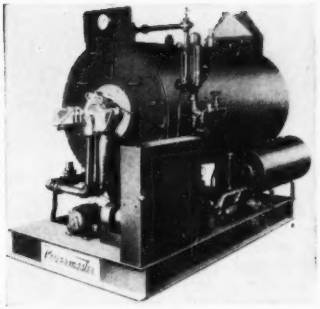
Less Bark . . . More Bite

"ROCKMASTER"—Trade Mark
Manasite: Reg. U. S. Pat. Off.

ATLAS EXPLOSIVES
"Everything for Blasting"

CHEMICALS ATLAS EXPLOSIVES

ATLAS POWDER COMPANY, Wilmington 99, Del. • *Offices in principal cities* • *Cable Address—Atpowco*



STEAM - GENERATING UNIT — "Powermaster" boiler system ranges from 15 to 200 hp. and is fully automatic. Burns heavy fuel, light oil and gas. Unit is equipped with modulated control of flame-volume to maintain constant steam pressure as steam demand varies. Air-atomizing burner promotes complete and clean combustion. Free-swinging rear cover makes tubes quickly accessible for cleaning. Electronic safety device shuts off boiler in case of flame failure.—**Orr & Sembower, Inc., Reading, Pa.**

SNOW LOADER—Swivel conveyor, swinging through a wide arc, permits snow to be discharged to trucks on either side. Conveyor extends over highest truck cabs so that trucks driving either forward or backward under conveyor extension can be loaded quickly to full capacity. Machine has heavy feeding propellers which chop and lift as they dig dry or hard-frozen snow. Loader has capacity of 15 to 20 cu.yd. per min. Can clean streets close to parked cars and discharge snow to a truck at either side or rear.—**George Haiss Mfg. Co., Inc., 141st St. and Park Ave., New York 51, N. Y.**

POWER-CHAIN SAW—Powered by two-cycle, 4-hp. motor using only 1 gal. of gasoline per day. Saw complete with cutting bar and 26-in. chain weighs only 37 lb. Control bars insure easy operation in all cutting positions. Exhaust fumes from engine are carried away from operator. —**Woodboss, Inc., 2712 N. Mississippi Ave., Portland 12, Ore.**

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IS THE NAME TO REMEMBER WHEN YOU WANT...
BODIES and HOISTS

Worthy of your Confidence

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HEAVY-DUTY DUMP BODY
WITH
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THE PERFECTION STEEL BODY CO., Galion, Ohio

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FOR ANY TRUCK
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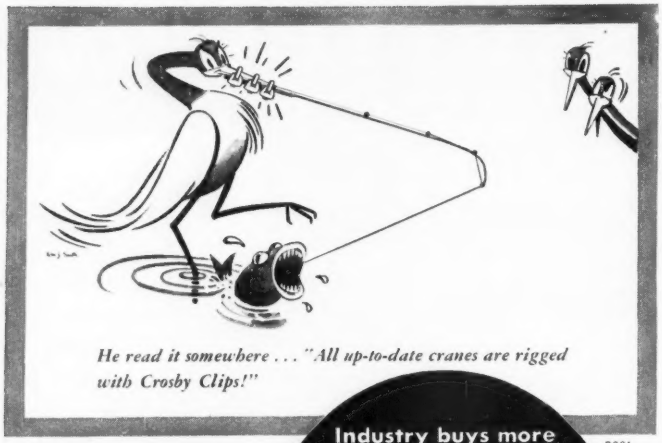

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Fasten wire rope with CROSBY CLIPS. Safe, simple, speedy . . . applied anywhere by one man with one wrench. *Drop-forged*, not cast. Hot dip galvanized. All sizes . . . for ⅛" to 3" wire rope. Distributors everywhere; made only by AMERICAN HOIST AND DERRICK CO., St. Paul 1, Minnesota.

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Wellman pioneered **welded rolled steel construction** for longer life and greater service. It's the extra strength that gives the extra, low-cost digging power. Whatever your requirements . . . whether for Multiple Rope, Power Arm, Dragline, Power Wheel or Special Service—specify Wellman! ⅜ to 16½ yd. capacity.

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THE WELLMAN ENGINEERING CO.

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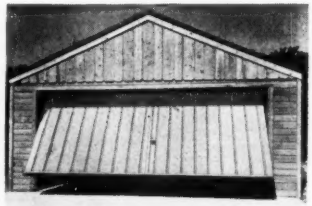
BOTTOM-DUMP WAGON—For off-highway haulage, new Euclid on 24x25 tires has an improved hopper design which places more pay-load weight on drive tires and provides good traction. Other features of bottom dump unit include new form-fitting seat and air booster steering which give added driver comfort and reduce driver fatigue. Wagon has struck capacity of 13 cu.yd. and a pay-load capacity of 40,000 lb. Steep hopper sides shed sticky materials fast and clean. This machine is designed for quick loading by power shovels, draglines, conveyors and other equipment. Powered by General Motors diesel engine of 190 brake hp. at 1,800 rpm., or Cummins diesel of 200 brake hp. at 2100 rpm.—**Euclid Road Machinery Co., Cleveland 17, Ohio.**

RAILROAD CAR UNLOADER—Designed for unloading materials from hopper-bottom cars, equipment is belt-driven through a standard Michigan cone-drive speed reducer. Used with 5-hp. gasoline engine, the cone-drive furnishes a 10 to 1 reduction for the conveyor. With this drive it is possible to start the conveyor under a full load of material. —**Barber-Greene Co., Aurora, Ill.**



STEEL DOUBLE GARAGE DOOR—Overhead receding (track) type door for 16x7-ft. openings is of sheet steel that has been hot galvanized and annealed for rust protection. Provides base for paint without need for special priming coat.—**Strand Building Products Co. (Division of Detroit Steel Products Co.), 1710 Buhl Building, Detroit 26, Mich.**

On The Giant Manitowoc 4500's

DIAMOND ROLLER CHAIN DRIVES

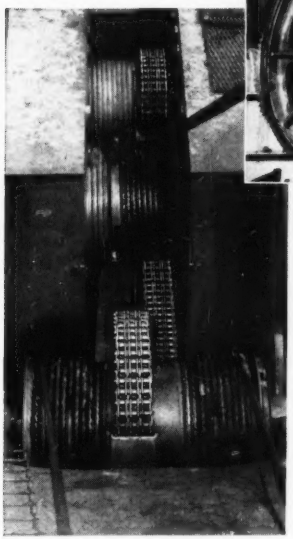
Deliver All the Power with Dependability

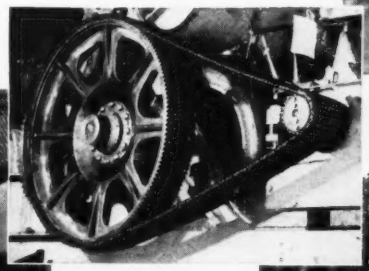
● The factors that have led to the increasing use of Diamond Roller Chain Drives on construction and roadmaking machinery are: —uniformity of quality, high mechanical efficiency, great reserve strength, inherent elasticity, and minimum of maintenance.

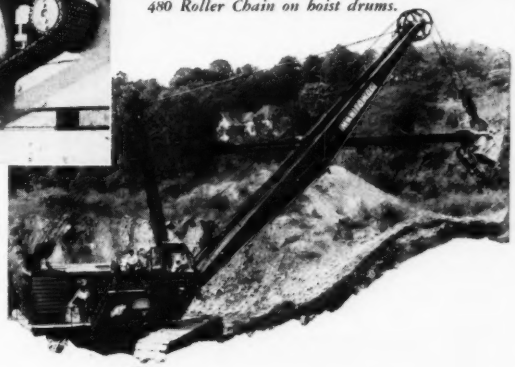
Diamond Roller Chains provide the dependability of performance that both contractors and leading machinery builders demand . . . DIAMOND CHAIN COMPANY, Inc., Dept. 418, 402 Kentucky Avenue, Indianapolis 7, Indiana. *Offices and Distributors in All Principal Cities.*

Installing the triple Diamond No. 480 Roller Chain on hoist drums.

BELOW: *Triple Diamond No. 480 Roller Chain driving hoist drums.*







ABOVE: *From engine to main shaft, power is carried by 8-strand Diamond No. 434 Roller Chain.*

AT RIGHT: *Manitowoc 4500 in coal stripping operation.*

DIAMOND **ROLLER CHAINS**

SPECIFY WENZEL TARPAULINS

Order from these Wenzel Tarpaulin DISTRIBUTORS

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Standard Equipment & Supply Corp., Hammond

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Brown-Strauss Corp., Kansas City
Machinery & Supplies Co., Inc., Kansas City
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Contractors Material Co., Inc., Jackson

LOUISIANA
Pelican Well Tool & Supply Co., Shreveport

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J. E. Ingram Equipment Co., San Antonio

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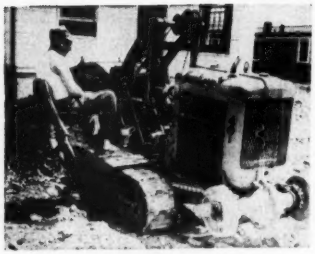
H. WENZEL TENT & DUCK CO ST. LOUIS, MISSOURI

For 61 Years . . . America's Foremost Manufacturer of Quality Tarpaulins



VEST POCKET DITCHER—New Buckeye 401 pony ditcher cuts narrow ditch 6 in. wide and 4 ft. deep. Digging buckets available also for 8-in. ditch. Unit weighs only 6,580 lb. and is powered by 47-hp. gasoline engine. Length of ditcher is only 13 ft. 9 in. and width is 4 ft. 4 in. Compactness of machine enables it to squeeze through areaways and to traverse lawns and walks without damaging them. Excavator boom is all-welded steel box type and is raised and lowered by self-locking worm hoist powered directly from engine transmission. Spoil is discharged at both sides of ditch. Left side crawler is adjustable vertically so that machine can maintain an "even keel" and dig a vertical ditch when operating along a slope or with one crawler on a curb. Recommended for small gas mains and service pipe and for burying cable.—**Gar Wood Industries, Inc. (Findlay Division), Findlay, Ohio.**

IN DENVER IT'S **DUMPCRETE CONCRETE*** *AGAIN!*

BETTER CONCRETE AT LOWER COST... ON ALLEY PAVING JOB

M. R. Latimer of Denver is getting compliments on his low-cost Dumpcrete Concrete. He writes, "The city inspector says our concrete is *superior to that mixed in transit.*"

Latimer mixes his air-entrained concrete at a central plant where the mix can be carefully controlled. "After a recent 13-mile, 35-minute haul," he reports, "concrete was well-graded and uniform, with no surface water on the load; and it could have been hauled a lot farther without segregation.

"Best of all," he continued, "our overall costs have been substantially reduced."

Concrete men in 42 states are getting better concrete at lower costs with the Dumpcrete. You can too. Write for more information.

The Dumpcrete Body

Lightweight, watertight, loads fast, dumps fast or slow, places anywhere, costs less to buy and run. Ideal for hauling aggregate, coal and earth.

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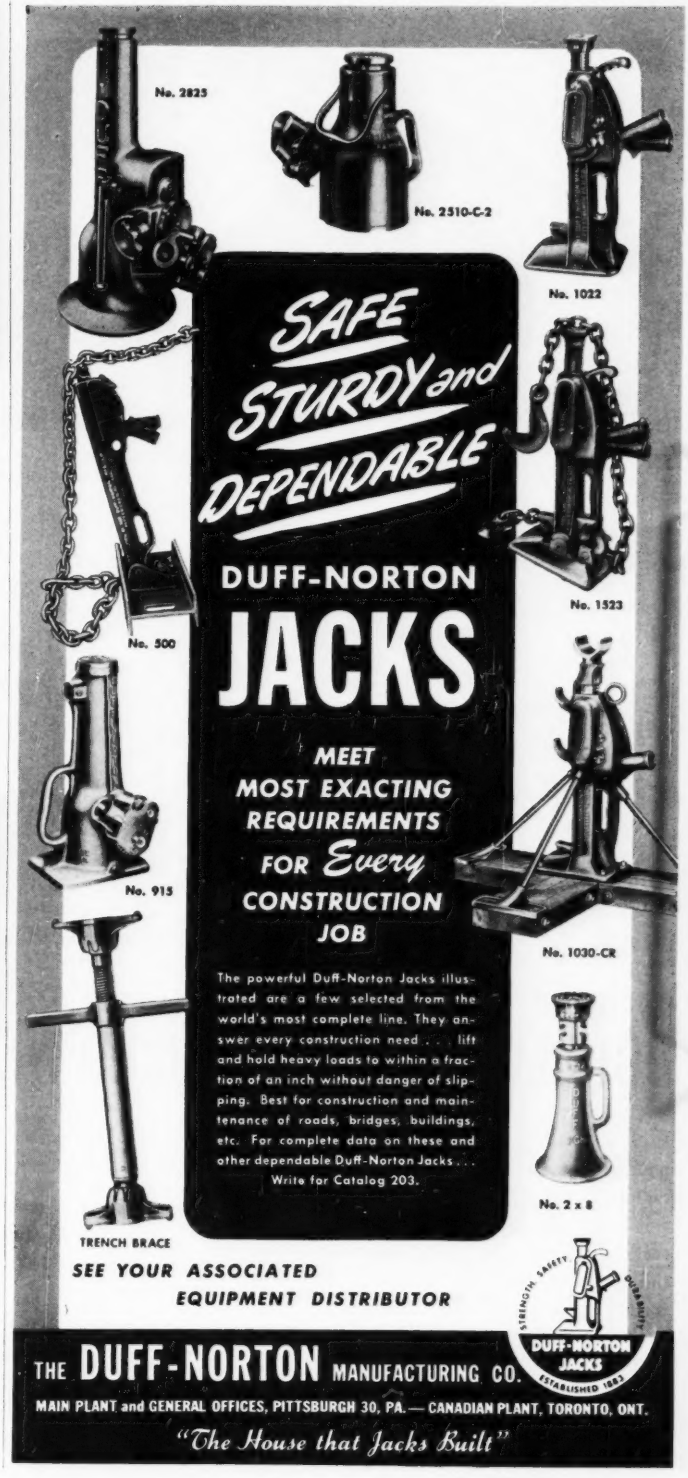
*** Dumpcrete Concrete** is central-mix air-entrained concrete hauled and placed with the speedy, low-cost Dumpcrete. Provides top-quality, plastic, workable and non-segregating concrete, saving up to $1.00 per yard.

DUMPCRETE DIVISION
MAXON CONSTRUCTION CO., INC.
514 Talbott Bldg., Dayton 2, Ohio

SAFETY TREAD LADDER STEP—Provides level footing for workers on rung ladders and enables them to make free use of both hands. Bracket of cast aluminum hooked over ladder rung carries $10\frac{3}{4}$x$8\frac{1}{2}$-in. platform of $\frac{3}{4}$-in. hardwood equipped with 5x$8\frac{1}{2}$-in. safety-walk tread material to prevent foot slippage. Total weight, 7 lb. Platform is always level irrespective of angle of ladder. Device is claimed to increase efficiency and to add to comfort of workers on ladders. While top hooks of aluminum bracket fit over one rung, bottom slots fit over next lower rung of ladder.—**Beauideal, Inc., 823 S. Water St., Saginaw, Mich.**

IMPACT NUT SETTER—Electric tool made by Illinois Gage & Mfg. Co., Chicago, comes in models with capacities from $\frac{3}{8}$- to 1- to $\frac{3}{4}$-in. bolt size. Speed-O-Matic tool tightens or removes nuts, bolts, studs and lag screws and may also be used for drilling and tapping. Length is $12\frac{1}{2}$ in. and weight is $14\frac{1}{2}$ lb. At point of resistance impact unit automatically delivers 3,000 impact blows per min. and tightens to a torque of more than 200 ft.-lb. on a $\frac{3}{4}$-in. bolt. Is instantly reversible and will not twist in operator's hands. Universal model plugs into any ac. or dc. outlet. — **Speed-O-Matic Sales, Inc., 4639 West Washington Boulevard, Chicago 44, Ill.**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SAFE STURDY and DEPENDABLE
DUFF-NORTON
JACKS
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The powerful Duff-Norton Jacks illustrated are a few selected from the world's most complete line. They answer every construction need . . . lift and hold heavy loads to within a fraction of an inch without danger of slipping. Best for construction and maintenance of roads, bridges, buildings, etc. For complete data on these and other dependable Duff-Norton Jacks . . . Write for Catalog 203.
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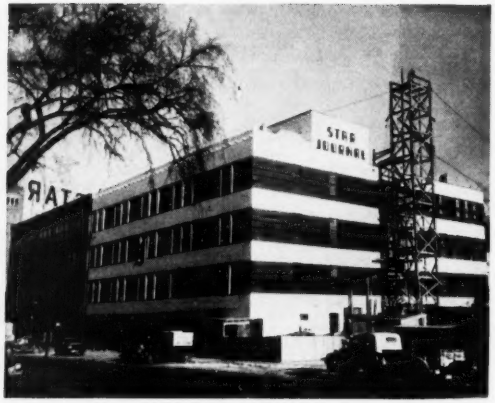
ESTABLISHED 1883
THE DUFF-NORTON MANUFACTURING CO.
MAIN PLANT and GENERAL OFFICES, PITTSBURGH 30, PA. — CANADIAN PLANT, TORONTO, ONT.
"The House that Jacks Built"

1930's . . . the old building of the Minneapolis Star which was fast being outgrown by the newspaper's increasing needs.



1940 . . . the first addition is nearly completed, more than doubling the size of the older building.

1940 (later) . . . the old building has been refaced to meet the attractive design of the modern addition.

1948 . . . size has again been doubled, providing more than 250,000 sq. ft. of floor space and covering almost a city block.

Architects: Larson and McLaren, Minneapolis. • **Contractor:** C. F. Haglin & Sons Inc., Minneapolis.

DOUBLED AND REDOUBLED WITHIN 10 YEARS

With almost any building of sound construction, a good architect and a good contractor, using the right materials, can work wonders in modernization. This was done twice within ten years during which time the *Minneapolis Star* and *Tribune* carried out a rebuilding program that developed into one of the finest publishing plants in America.

At each stage in the construction of this attractive building of contrasting black and buff brick, the work was done by the same architect and the same contractor using the same Lehigh Cements . . . Lehigh Mortar Cement for the masonry, Lehigh Portland Cement for the concrete.

Whatever your cement requirements, there are Lehigh Cements to fit them. Our Service Department will be glad to help you with your specific problems.

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LEHIGH MORTAR CEMENT • LEHIGH EARLY STRENGTH CEMENT

America's Choice

CHEVROLET ADVANCE-DESIGN TRUCKS

for All-Around Value!

Ask the experts—

If you ask the drivers, they'll say:

"Chevrolet Advance-Design Trucks can and will take it day after day, month after month. They're easy to handle . . . built with driver safety and comfort in mind."

The mechanics insist:

"Chevrolet trucks last longer because they're designed, engineered and built for the job. They're easier to work on . . . built with an eye to economical maintenance."

The owners will tell you:

"Only Chevrolet has the TRIPLE ECONOMY of low cost operation . . . low cost upkeep . . . and the lowest prices in the entire truck field."

CHEVROLET MOTOR DIVISION, *General Motors Corporation*, DETROIT 2, MICHIGAN

Only the Leader—Chevrolet has all these features:

NEW CHEVROLET 4-SPEED SYNCHRO-MESH TRUCK TRANSMISSION

A special feature in one-ton and heavier duty models that assures new operating ease and efficiency.

THE CAB THAT "BREATHES"

Here are the trucks with the famous cab that "breathes"! Outside air is drawn in and used air is forced out! Heated in cold weather.*

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Chevrolet's Advance-Design Cab is mounted on rubber, cushioned against road shocks, torsion and vibration.

IMPROVED VALVE-IN-HEAD ENGINE

The world's most economical engine for its size now has greater durability and operating efficiency.

SPLINED REAR AXLE HUB CONNECTION

Greater strength and durability in heavy-duty models with this exclusive Advance-Design feature.

PLUS Uniweld, all-steel cab construction • New, heavier springs • Full-floating hypoid rear axles on ¾-ton and heavier duty models • All-round visibility with rear corner windows* • Specially designed brakes • Hydrovac power brakes on two-ton models • Ball-bearing steering • Double-line pre-selective power shift in 2-speed axle at extra cost on two-ton models • Wide base wheels • Standard cab-to-axle-length dimensions • Multiple color options.

**Heating and ventilating system and rear corner windows with de luxe equipment optional at extra cost.*

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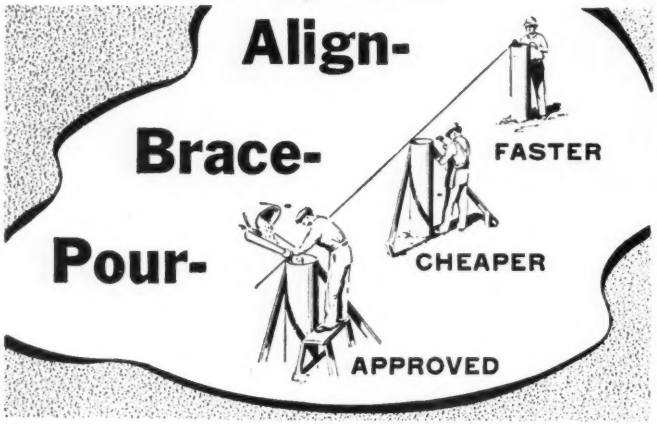

LENGTHS UP TO 24 FEET

Hand saw to lengths (desired heights) on the job

INSIDE DIAMETER					
8"	9"	10"	11¼"	12"	13½"
SQUARE INCHES					
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New PUBLICATIONS From MANUFACTURERS

The catalogs and bulletins reviewed below will keep you posted on latest developments in construction equipment and materials available for your use

CRAWLER-TRACTOR — A 24-p. two-color catalog features Allis-Chalmers HD-5 crawler's capacity and ability to meet the variable needs of counties, townships and contractors, emphasizing (1) the A-frame track stabilizer design which absorbs shock, eliminates twisting strains and provides rigid track alignment; (2) track release mechanism, positive sealed truck wheels and tapered roller bearings; (3) the strong rugged case built to take shock loads and keep shafts in perfect alignment; (4) capacity 14-in. master clutch which assures smooth and easy shifting.—**Allis-Chalmers Manufacturing Company, Tractor Division, Milwaukee 1, Wis.**

PORTABLE AIR TOOLS—(Folder). Catalog pages cover paving breakers, clay diggers, trench diggers, backfill tampers, sinker rock drills, drifter rock drills, and nail driver. Also included are electric hammer, sump pumps, pneumatic and electric saws, concrete surfacing grinders, and accessories, such as hose couplings and fittings. All of these products bear the trade name of Thor.—**Independent Pneumatic Tool Co., Aurora, Ill.**

SOIL CEMENT — (32-p. bulletin) No. 50 is a non-technical discussion on the processing of soil-cement with the Seaman Pulvi-Mixer. Intended primarily for the man on the job, it applies to the contractor, paving official and as a ready reference on processing. Text describes mixing action, several recent improvements and adaptation and application to soil-cement construction. — **Seaman Motors, Inc., 305 N. 25th St., Milwaukee, Wis.**

PORTABLE MATERIAL ELEVATOR—(8-p. bulletin) Announces new allowable height of 97 ft., with platform lift of 90 ft. Tower is pin-connected and hoist raises tower easily and quickly. Concrete bucket of 14-cu.ft. capacity is interchangeable with 6-ft. platform. Publication shows operating views as well as mechanical details.—**American Hoist & Derrick Co., 63 S. Robert St., St. Paul 1, Minn.**

DIESEL CRAWLER TRACTORS—(Four folders) Deal with diesel tractor models TD 6, 9, 14 and 18, ranging in drawbar horsepower from 29.5 to 80.5. Information includes detailed specifications for each model and description of principal mechanical features. — **International Harvester Co., 180 N. Michigan Ave., Chicago 1, Ill.**

DUMPTORS—(28-p. booklet) Titled "Cutting Haul Costs with Koehring Dumptors," this publication deals with off-road material hauling, with time study results, production charts and specifications. Mechanical features of equipment are outlined and described in detail. Dumptor has capacity of 5¼ cu.yd. struck measure and payload weight of 15,600 lb. Traveling speeds range from 5.37 to 18.94 mph.—**Koehring Co., 3026 West Concordia Ave., Milwaukee 10, Wis.**

PORTABLE AIR COMPRESSOR—(8-p. bulletin) Describes Pac-Air two-cylinder, single-stage compressor mounted on two rubber-tired wheels and driven by 9-hp. air-cooled gasoline engine. Machine is equipped with a quick-detachable hitch for towing behind truck or tractor. Compressor has piston displacement of 37.5 cfm. at 80 psi pressure.—**Ingersoll-Rand Co., Phillipsburg, N. J.**

CONTRACTORS' PUMPS—A 16-p. bulletin covers line of self-priming centrifugal contractors' pumps. Last several pages give information on how to select the correct size self-priming centrifugal pump and valuable engineering data to assist contractors in solving their problems. There are also handy tables to assist in figuring pumping requirements. On the back page of the bulletin many other Gorman-Rupp pumps are pictured in miniature.—**The Gorman-Rupp Co., Mansfield, Ohio.**

WATER CONDITIONING—Executives and engineers concerned with the treatment of water for steam generation, process work or general plant services will be interested in a brochure about LIQUON equipment and LIQUONEX materials for all liquid conditioning processes. It outlines the background, facilities, and processes and equipment offered in the fields of water treatment and conditioning of other liquids. Included in it are references to more than 50 technical articles covering developments in these fields. The brochure also contains illustrations of plant facilities and installations of various types of LIQUON equipment.—**Liquid Conditioning Corp., 114 E. Price St., Linden, N. J.**

A NEW HIGH-FLYING HIGHWAY *Built with* **BLAW-KNOX** *Steel Forms*

Here is one of the most spectacular concrete jobs where Blaw-Knox Steel Forms are speeding and improving work, cutting costs, saving time and manpower. The three 175-ft. arches which will support a 980-ft. long viaduct on Pittsburgh's newest 4-lane super highway, are being built with three sets of Blaw-Knox steel centering which carry the forms for the arch ribs. When a rib is completed, the 30-ton centering is moved sideways on skids without dismantling to the location of the next rib, assuring identical arches . . . a job impossible to do with wood forms.

WHATEVER *your* job, from tall bridge to small sewer, you'll get faster construction with greater savings from Blaw-Knox Steel Forms. Basically simple, Blaw-Knox Forms assemble and strip readily, are designed for continued use without distortion or maintenance repairs. Soundly engineered to utilize the full strength of steel, they eliminate extra bracing and "in-the-way" formwork . . . save time and money by decreasing the number of operations, materials and workmen needed for the job.

Blaw-Knox Steel Forms are engineered to *your* job, built to *your* specifications. Blaw-Knox engineers will gladly consult with you to help you get the best performance at the least cost. Take advantage of Blaw-Knox experience developed by more than 40 years of building Steel Forms for a major share of the most outstanding concrete jobs. For complete information on Blaw-Knox Steel Forms, send for Bulletin 2035.

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BLAW-KNOX STEEL FORMS

Eliminating Bad Curve On New York's Route 26

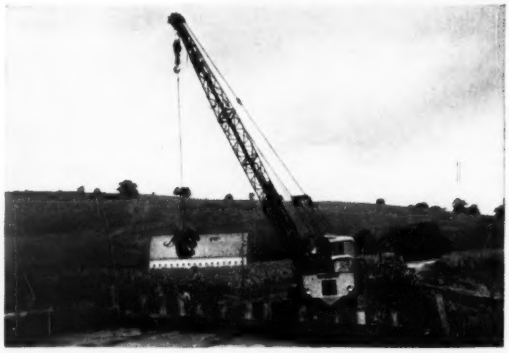
Above: Heavy grader makes short work of stones and dirt as it smooths the way for bridge approach.

Right: To provide firm foundation, Bethlehem H-Piles are driven to solid rock. Over 100 tons of H-Piling were used in building the two bridges.

Below: Crane swings load of Bethlehem Reinforcing Steel onto partly-built bridge.

Construction detail is discussed by Robert Baker (left), general foreman, and Edmund P. Smith, superintendent, both of Binghamton Construction Co.

The construction scenes shown here were taken recently at Glen Aubrey, N. Y., during a curve-elimination project on Route 26, popular north-south highway originating southwest of Binghamton, at the boundary with Pennsylvania. The project was handled by the Binghamton Construction Co., Binghamton, N. Y., and included the erection of two 50-ft-span bridges. Reinforcing Bars and H-Piles were furnished by Bethlehem.



Spreading blanket of concrete over Bethlehem Reinforcing Bars in bridge deck.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by
Bethlehem Pacific Coast Steel Corporation
Export Distributor: Bethlehem Steel Export Corporation

STEEL FOR HIGHWAYS

Dowel Units • Reinforcing Bars • Bar Mats • Guard Rail
Guard Rail Posts • Wire Rope and Strand • Pipe
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Haul SMALL or MEDIUM EQUIPMENT WITH YOUR DUMP TRUCK ON THE

ROGERS "TAGALONG"

FRONT LOADER

Available in 10 to 20 Ton Capacities

With the new Rogers "Tagalong" trailer a dump-truck serves as the tractor to haul light and medium equipment, and one driver handles both jobs.

Your overhead is kept to a minimum. Hauling charges and costly delays are eliminated with the "Tagalong".

Write for prices and additional information on this versatile trailer which will save its purchase price in a remarkably short time. PATENTS PENDING.

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GLASS BLOCK FENESTRATION—(16-p. booklet) Deals with control of natural daylight through use of functional glass blocks. Describes in detail proper selection of glass block and its use for light direction and diffusion. Includes nomograph for estimating illumination levels. Topics covered include daylight control, types of functional blocks and their uses, brightness data, light transmission and distribution and a pictorial section of typical installations of functional glass block.—**Pittsburgh Corning Corp., 632 Duquesne Way, Pittsburgh 22, Pa.**

SEPARATION MAGNETS — (4-p. bulletin) Deals with rectangular and round types of magnet for road clearing work, when suspended from the rear of a truck and for removing tramp iron which might injure crushers or other machinery. Gives data on field attraction and penetration, magnet dimensions, weights and lifting capacities.—**Ohio Electric Mfg. Co., 5900 Maurice Ave., Cleveland 4, Ohio.**

PILE HAMMERS—(Bulletin) For single-acting pile hammers, this bulletin presents revised specifications and a list of component parts for various sizes. Text explains special purposes and uses of single-acting type of pile hammer. Advantages claimed include underwater driving. Operating instructions have been revised and elaborated.—**McKiernan-Terry Corp., 15 Park Row, New York 7, N. Y.**

HOISTING MACHINERY — (19-p. bulletin) Covers wide range of hoists, including steam, gasoline, diesel and electric, from one-drum to three-drum units. Types include gear-driven and chain-driven hoists. Also electric capstans, car-pullers and boom-swinging gears. — **Superior-Lidgerwood-Mundy Corp., Superior, Wis.**

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ACCESSORIES: 2000 lb. capacity derrick that mounts on top of tower . . . ½ yd. concrete bucket to be used in place of elevator platform . . . trailer wheels for towing entire machine by truck or tractor.

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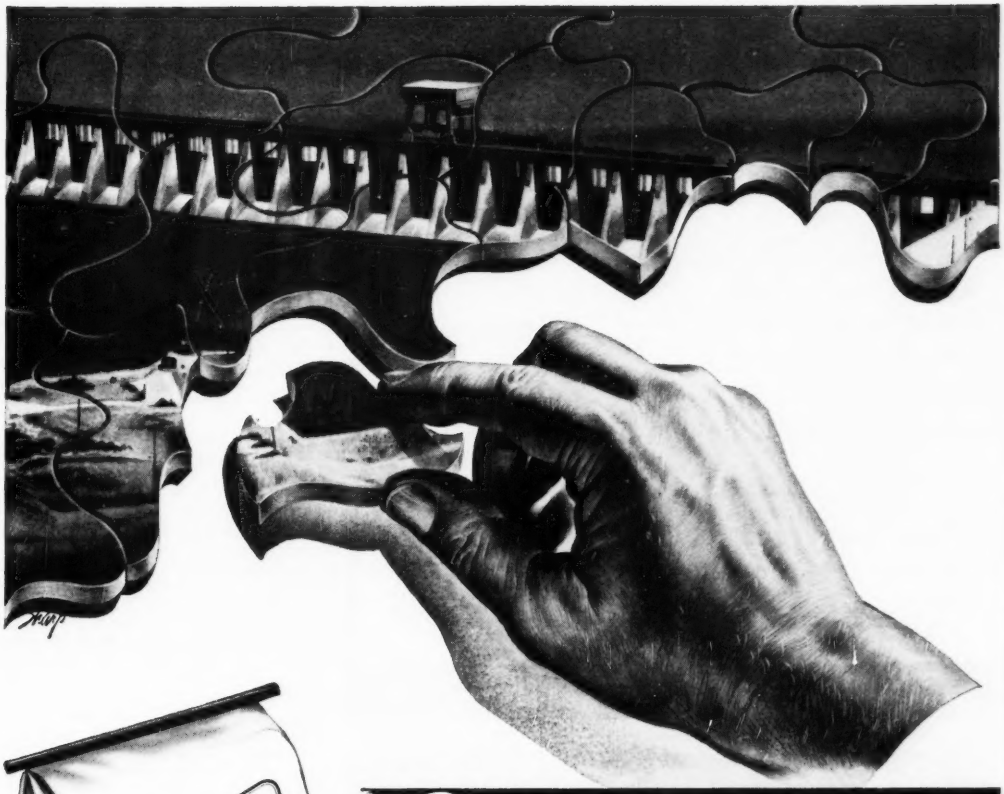

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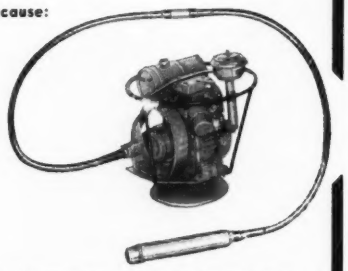

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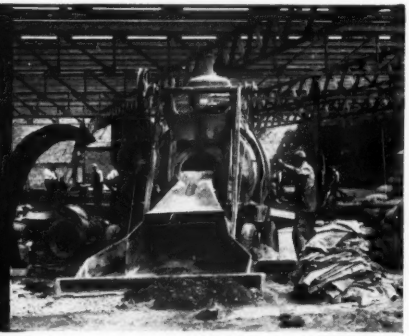

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WELDING ELECTRODE HOLDERS—(12-p. pamphlet) Includes information on electrode holders for arc welding, ground clamps, cable connectors, splicers and cable lugs. Also information on maintenance and care of electric welding cables, connections, grounds and holders.—**Tweco Products Co., P. O. Box 666, Wichita, Kansas.**

WELDED CONNECTION UNITS—(56-p. manual) Engineering data on recommended practice for Saxe system of welded connection units for erection of welded steel structures. Simple hook-and-eye principle locks steel members in position and self-aligning action eliminates hours of costly plumbing up. In field erection work, system utilizes seat and clip for positioning structural steel members.—**J. H. Williams & Co., 400 Vulcan St., Buffalo 7, N. Y.**

DUMP BODY FOR CONCRETE HAULAGE—(4-p. folder) Describes and illustrates applications of Dumpcrete, available in 2-, 3- and 4-cu.yd. sizes for hauling mixed concrete. Emphasizes controlled discharge and long sectional chute to allow slow or fast discharge into buckets, hoppers or forms. Watertight body prevents leakage during haul. Illustrations show various applications on construction work. — **Dumpcrete Division, Maxon Construction Co., Inc., Dayton 2, Ohio.**

RIGID STEEL CONDUIT — (64-p. catalog and handbook) Describes manufacturing processes at Spang-Chalfant plant in making three grades of rigid conduit in sizes from ½ to 6 in. These include hot-dipped galvanized and lacquered, electro-galvanized and black enameled. Complete specifications for all grades. There is a 37-p. section of reference material and tables for electrical contractors and users of conduit. Also tables of electrical data and computation of conductor sizes. —**National Supply Co., Pittsburgh, Pa.**

PORTABLE BATCHING PLANTS—(24-p. booklet) Discusses road builders' aggregate and cement-handling equipment with emphasis on multiple-compartment bins with dual or single batcher. Typical plant layouts involving Johnson batching plants are shown in sketches to illustrate time and labor-saving features. New pieces of batching equipment described include all-purpose bin, high speed batcher for two, three or four materials, low-bin trolley batcher, and portable elevating cement charger. The Johnson company is a subsidiary of the Koehring Co., of Milwaukee.—**C. S. Johnson Co., Champaign, Ill.**

SELF-LOADING TRUCK—Circular describes Model 15 transport rocker shovel, a heavy-duty machine for loading, transporting and depositing material without the aid of any auxiliary equipment. In reality it is a self-loading truck. It is a self-contained unit and may be powered by gasoline engine or by either ac. or dc. electric motor. Bucket motion is controlled by a lever between the steering and locomotive levers. It is very maneuverable in tight places.—**The Eimco Corp., Salt Lake City 8, Utah.**

SNOW REMOVAL—An 8-p. folder, based on a 15-min. 16-mm. sound and color movie, "Modern Snow Removal by Haiss," is now available. Summarizes the story of the movie describing performance of Haiss snow loaders—Model 75 WS (wheel mounted), Model 75 CS (crawler mounted) and Model 300 WS-SBC (equipped with swivel belt conveyor). Typical scenes show difference between hand shoveling and snow removal by Haiss in a number of cities. Film is available now for free showings.—**George Haiss Mfg. Co., Inc., division of Pettibone Mulliken Corp., 141st to 144th St. on Park Ave., New York 51, N. Y.**

HEAVY DUTY FLOORING—Bulletin gives an account of the experience of the N. Y. Central R.R. System with heavy-duty Emery flooring on freight platforms made with Cortland Emery aggregate. Facts are given about weight and type of traffic passing over outdoor freight platform, use of salt and other chemicals to keep clear of ice, without ill effect, and photographic illustrations of conditions under which these EMERI-CRETE floors operate.—**Walter Maguire Co., Inc., 330 W. 42nd St., New York 18, N. Y.**

CORROSION - RESISTANT CONCRETE—New booklet on Lumnite tells of corrosion-resistant concrete. It covers both methods and materials used in placing corrosion-resistant concrete in a wide variety of industrial applications. In addition to floor applications, corrosion-resistant concrete is being successfully used in lining stacks, oil refinery vessels and drainage systems.—**Lumnite Division of Universal Atlas Cement Co., 135 E. 42nd St., New York 17, N. Y.**

SNOW LOADER — Utility and heavy-duty models of snow loaders, featuring spiral feed with renewable steel teeth, and with capacities of from 8 to 30 cu-yd. a minute are described and illustrated in a new bulletin.—**N. P. Nelson Iron Works, Inc., Cifton, N. J.**

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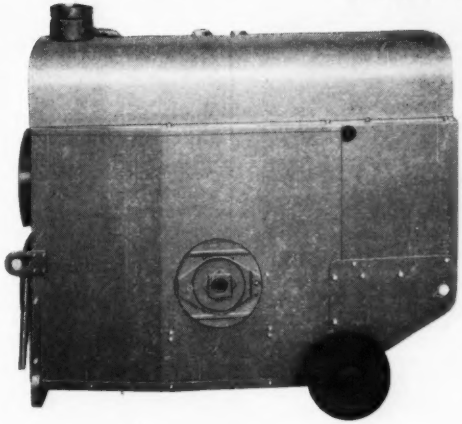

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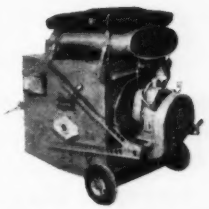

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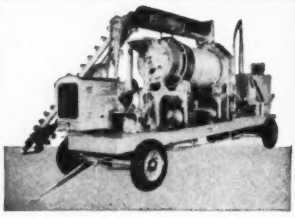

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WIRE ROPE AND SLINGS — 4-p. folder describes standard wire rope and slings. Accompanying the folder is a 12-p. inventory booklet which lists the exact quantity in stock, complete description and length of each item, and unit price on the wire rope, wire rope slings and assemblies. Also available is a 6-p. brochure on light-weight interlocking corrugated sheet steel piling.—**L. B. Foster Co., Pittsburgh 30, Pa.**

PROTECTION FOR METAL SURFACES — (12-p. bulletin) Coating called "Dum Dum for Metal" provides a tough but elastic and pliable weather - resistant, water - repellant covering that excludes moisture, vapor and chemical gases and fumes. Seven typical applications are noted along with directions for using the material (which is spray-applied) and preliminary surface preparation required.—**Arco Co., 7301 Bessemer Ave., Cleveland 4, Ohio.**

CALCIUM CHLORIDE EFFECTS—A 40 p. semi-technical booklet, of interest to engineers and others concerned with specifications, design or production of Portland Cement concrete, has been issued. It condenses from research and technical reports the effects of adding measured quantities of calcium chloride to Portland Cement mixes. It contains tables, graphs and charts covering setting time, early strength, curing, slump, density, surface wear, shrinkage, and ultimate strength. Also shown are effects of varying temperatures and cold weather, and the results with special cements including air entraining, high-early-strength, and low heat cements.—**Solvay Sales Division, Allied Chemical & Dye Corp., 40 Rector St., New York 6, N. Y.**

TRUCK EQUIPMENT—A large catalog lists a great variety of equipment items for trucks and trailers including winches, dump bodies, pumps, power take-offs, brakes and parts, load chains, grab hooks, wire line, etc.—**Leland Equipment Co., 12 N.W. 13th St., Oklahoma City, Okla.**

AIR ENTRAINMENT—A 32-p. illustrated booklet discusses the modern placement of concrete through air entrainment. Explains advantages to the contractor, of more workable concrete, shorter construction time, freezing and thawing resistance, greater water tightness, increased spalling resistance, immediate use, resistance to abrasion, and prevention of segregation of aggregates.—**Autolene Lubricants Co., Industrial and Research Division, Denver 9, Colo.**

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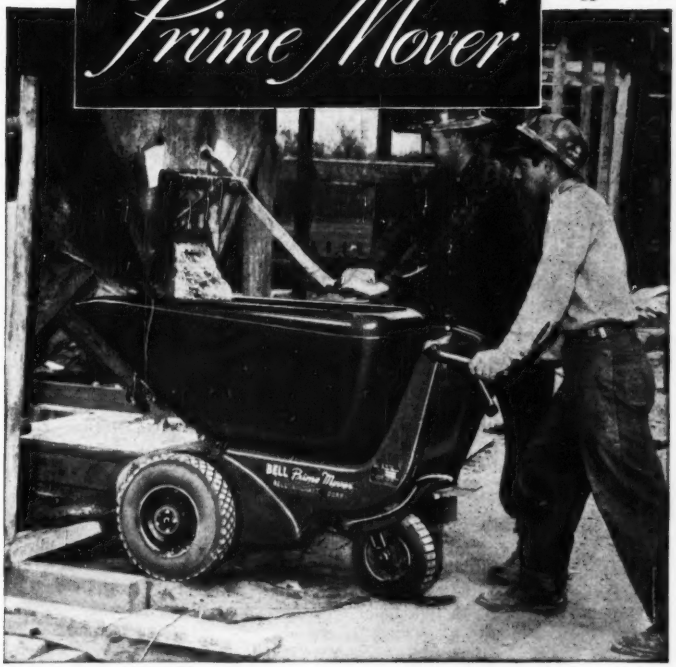

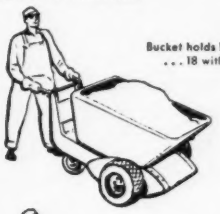

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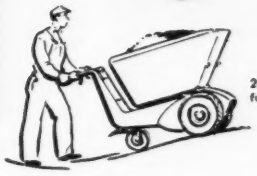

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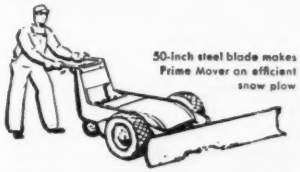

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Hercules WD-12 Dump Body, equipped with Hercules 7X "Center-Lift" Hoist. Note integrated underbody construction, with crossmembers and longitudinals welded into a single, exceptionally sturdy unit

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The HERCULES Type X "Center-Lift" Hydraulic Hoists

Smooth, powerful lifting action—that's the advantage of the "Center-Lift" principle, pioneered by Hercules and developed to its most efficient stage in the precision-built Hercules Type X Hydraulic Hoist.

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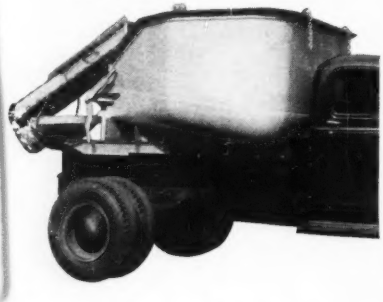

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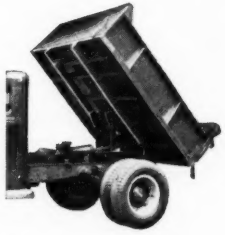
Hercules Heavy-Duty Dump Body, mounted on six-wheel chassis, with Hercules 8X Hydraulic Hoist. Body, of 10-gauge steel, measures 144" x 84" has a capacity of 8 cubic yards. "Center-Lift" principle, originated by Hercules, insures smooth, easy lifting of large capacity loads.



Hercules D-12 Contractor's Body, sturdy unit for all-around work. Pyramid-type enclosed steel side braces and full-length rub rails for maximum strength.

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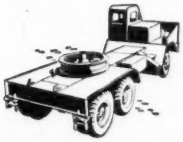
Gets to the job as fast as a truck, and under its own power.

"IT MOVES DIRT FAST—
Anyway you look at it, it's *yardage* that counts. MICHIGAN'S 5.4 RPM swing and fast air clutches give you the extra yards a day you're after.



"IT'S *REALLY* BUILT—
Any time you put a shovel on a truck you need a chassis that's designed for the job. And MICHIGAN *knows how*—they've built their own chassis for years.

"IT'S EASY TO HANDLE—
You know that if a machine is rough on the operator he'll probably be rough on the machine. MICHIGAN'S air ram clutches are fast and easy. They take the work out of operating. That's why my operators like to run the MICHIGAN."

See MICHIGAN Truck Shovels at work on jobs like yours — write for Bulletin 100, "On The Job with MICHIGAN."

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MICHIGAN POWER SHOVEL COMPANY, 495 Second Street, Benton Harbor, Michigan, U. S. A.

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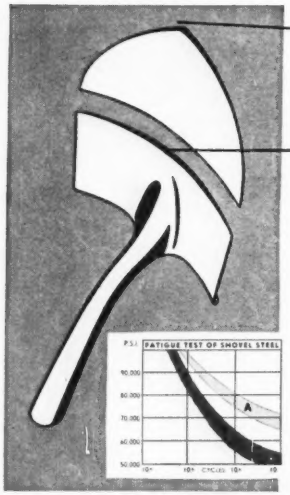

Look at the cutting edge of any RAZOR-BACK shovel and you'll see that the blade is 60% thicker in the center than at the sides.

This strong center *backbone* of 13 gauge steel extends the full length of the shovel — resists wear at the cutting edge, reinforces the frog where ordinary shovels tend to break, and forms a rigid, extra-long socket for the handle.

Yet the tool weighs no more, because we taper the sides to 17 gauge, where shovels never wear out or break.

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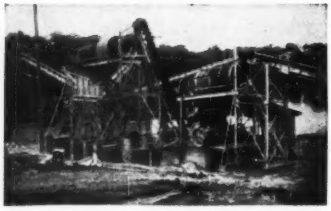
Reliance EQUIPS *your* JOBS



RELIANCE PRODUCTS

Rock Crushers, Bucket Elevators, Revolving Screens, Storage Bins, Pulverizers, Chip Spreaders, Heating Kettles, Bin Gates, Feeders, Belt Conveyors, Grizzlies, Air Separators, Sand & Gravel Spreaders, Wash Boxes.

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DISTRIBUTORS IN ALL PRINCIPAL CITIES OF U. S. A.

MAKING WIRE ROPE—A 4-color sound film, "Indian Paint," is available for public showing. Picture runs 35 min., portraying the making of steel from ore to finished product—wire rope. Both educational and entertaining. Arrangements can be made for the showing without obligation before any group or organization.—**The Colorado Fuel and Iron Corp., Wickwire Spencer Steel Division, Palmer, Mass.**

HARD FACING ALLOYS—Bulletin tells of Stoody products to provide increased wear resistance, faster deposition and better weldability of hard facing materials. Designed primarily for hard-facing crushers, shovels, tractor parts, dredges, materials handling and heavy construction equipment.—**Stoody Co., Whittier, Calif.**

DIESEL AND GASOLINE ENGINES—(24-p. pamphlet) Describes and illustrates wide range of engines from 4 to 330 hp. There is a two-page tabulation of diesel engine horsepower and condensed specifications. Also tables devoted to diesel-electric and gasoline-electric generator sets for standby and standard service.—**Buda Co., Harvey, Ill.**

WATER PURIFICATION—Series of bulletins explains line of Sterelators for safe and efficient controlling, metering and feeding of chlorine for sterilizing water of solutions. There are two types—: Solution feed type in which the dry chlorine gas is first absorbed in water and then distributed through solution lines to the point or points of application; direct feed type by which the dry chlorine gas is delivered in the required amounts direct to the point or points of application.—**Everson Manufacturing Co., 214-16 W. Huron St., Chicago, Ill.**

"Mean to say you never heard of a quonset hut?"

SIDEWALK BRIDGES — Bulletin illustrates Gold Medal steel sidewalk bridges for which is claimed maximum safety and neatness and minimum inconvenience to the public.—**The Patent Scaffolding Co., Inc., 38-21 Twelfth St., Long Island City 1, N. Y.**

WALL FORM CONSTRUCTION—Folder describes Symons system of wall form construction in which tie-rods do not go through the panels but are anchored at the sides. These ties act as spreaders and do away with 75 percent of the customary bracing.—**Symons Clamp and Mfg. Co., 4265 W. Diversey Drive, Chicago, Ill.**

SNOW LOADER — (8-p. pamphlet) Operating features and controls of Model 522 self-propelled and self-feeding mechanical snow loader. With one-man operation, loads up to 5 cu.yd. per min. Swivel conveyor discharge enables trucks to drive alongside machine to receive their loads and continue forward with least truck delay. Designed for low clearance with over-all height of only 12 ft. 3 in. in operating position. **—Barber-Greene Co., Aurora, Ill.**

ELECTRIC PLANTS—(20-p. booklet) Contains a model guide to assist in selection of electric plants. Also, statistics on watts required by electric motors and appliances. Describes Onan electric plants in sizes ranging from 350 watts weighing 77 lb. to 35,000-watt diesel units weighing 3,050 lb. Also covers special accessories. **— D. W. Onan & Sons, Inc., Minneapolis 5, Minn.**

BUCKET LOADERS—A 12-p. circular gives all the information about the Haiss heavy-duty bucket loaders equipped with integral swivel belt conveyor discharge. Large pictures show advantages of various applications of this type of materials loading.—**Pettibone Mulliken Corp., 4700 W. Division St., Chicago 51, Ill.**

PREST-GLASS — (12-p. pamphlet) Describes and illustrates corrugated panels of Prest-Glass which consists of Fiberglas combined with thermo-setting resin formed under pressure and high heat. Screens vision but, in its translucent form, it transmits light freely. Supplied in a wide variety of integral colors and in glossy or matte finishes. Weighs approximately 5 oz. per sq.ft. and although rigid in one dimension, it is flexible in the other and can be shaped to curved surfaces. Panels can be cut to size on job with shears, knife or power tools. Applications include ceilings, walls, partitions and store fronts.—**Prest-Glass Corp., 8 E. 12th St., New York 3, N.Y.**

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5x	1 3/4"	1.90
6	1 1/2"	1.90
66	1 3/8"	1.90
7	2 1/2"	1.90
8	3"	2.50
9	3 1/8"	2.50
10	3 1/4"	2.50
11	3 1/2"	2.75
115	3 3/4"	3.00
12	4"	3.00
123	4 1/8"	3.00
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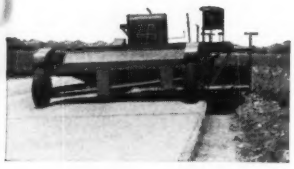

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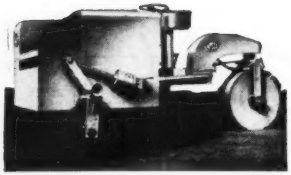
Run by two-man crew—powerfully built—handles any aggregate up to 6″ in 2′ to 8′ strips.



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WELDING AND CUTTING APPARATUS—(39-p. catalog) Covers line of Victor gas-welding and flame-cutting apparatus including torch butts, nozzles, cutting attachments, cylinder manifolds, regulators and pressure gages. Also wheel trucks for moving oxygen cylinders.—**Victor Equipment Co., 844-54 Folsom St., San Francisco, Calif.**

HARD FACING—Booklet describes the hard facing of mixer arms on concrete and cinder block equipment. It contains new complete information on hard facing procedures plus sketches showing exactly where to hard face the parts. Increased life of 4 to 5 times has been reported from users of this equipment when hard faced, as described in the booklet. — **Wall Colmonly Corp., 19345 John R, Detroit 3, Mich.**

BRAZING FITTINGS — Bulletin gives instructions for a process of low-temperature silver alloy brazing for joining pipe and tubing, which makes assemblies that are strong, permanently leak-tight and maintenance free. Any user of an oxyacetylene torch can become proficient in the use of "Easy-Flo" or "Sil-Fos." —**Handy & Harmon, 82 Fulton St., New York 7, N. Y.**

ROLLING DOORS—An 8-p. catalog covers rolling grilles, sliding grilles, rigid and folding upward acting doors in wood and steel. Grilles are also made of aluminum, bronze and stainless steel.—**Cornell Iron Works, Inc., 36th Ave. & 13th St., Long Island City 6, N. Y.**

FIBERGLAS — Handsome booklet presents products of Fiberglas as applied or displayed in the new office building of **Owens-Corning Fiberglas Corp., 16 E. 56th St., New York, N. Y.**

HARD-FACING ALLOYS — (2-p. data bulletin) Describes procedures for hard-facing tire chains with Colmonoy, with aid of oxyacetylene welding outfit. Gives details of recommended technique for welding operation on tire chain links.—**Wall Colmonoy Corp., 19345 John R, Detroit 3, Mich.**

DRIVING MILES OF PILES

McKiernan-Terry No. S-5 Single-Acting Pile Hammer driving steel H-beams and wood piles for bulkheads and piers to berth de-activated naval vessels at Green Cove Springs, Florida. McKiernan-Terry Double-Acting Hammers No. 10-B-3 and 11-B-3 (not shown in photos) were also used. *Merritt-Chapman & Scott Corp., contractor.*

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STANDARD OIL COMPANY (INDIANA) STANDARD

ASPHALT ROOFING PRODUCTS—(83-p. manual) Deals with manufacture, selection and application of asphalt roofing products. Includes 53 pages of text and illustrations on recommended practice in the application of various types of shingles and roll roofings. Tells how to estimate quantities of roofing. Dimensions and weights of typical asphalt roofing products are tabulated.—**Asphalt Roofing Industry Bureau, 2 West 45th St., New York 19, N. Y.**

FLAME CUTTING—New catalog shows in four colors a comprehensive portion of the large line of Victor gas welding and flame cutting apparatus.—**Victor Equipment Co., 844-54 Folsom St., San Francisco, Calif.**

ROCK SALT STORAGE—Pamphlet tells easy ways to store rock salt. It contains engineering data and sketches for both indoor and outdoor storage—space needed for storing various tonnages of bulk or bag rock salt, piling arrangements, weight and volume of bulk rock salt and in 100-lb. paper bags, and the slope required on chutes for loading and unloading.—**International Salt Co., Inc., Scranton, Pa.**

SAFETY LADDER STAGE—(2-p. folder) Describes safety ladder stage to provide working area or scaffolding unit for all above-ground operations where ladders can be used. Affords a working area of 26x24-in. with frame fabricated of aluminum alloy, stage weighs less than 9 lb. Foot-boards are of seasoned waterproof wood and are slotted for easy width adjustment. — **Juniata Co., Huntingdon, Pa.**

CONTRACTORS' BARROWS—Circular describes a well built and well balanced wheelbarrow with a welded tubular steel chassis, sturdy and light with a 400x8 steel disk, ball bearing wheel, pneumatic and zero pressure tire, equipped with welded steel tray 41 in. over all, width 26 in., depth 14½ in.x8 in. capacity, level, 4 cu. ft., heaped, 5 cu. ft. Weight about 80 lb. Load capacity 500 lb.—**Spaylow Co., 4441 Santa Fe Ave., Los Angeles 11, Calif.**

ROAD COMPUTATOR — Handy pocket-sized, specially designed slide rule quickly determines bitumeter or tachometer settings for all rates of distribution with spray bar lengths of from 3 to 30 ft.; binder material required for application of from ¼ to 4 in. in depth. Device also can be used to solve any multiplication, division or percentage problem.—**E. D. Etnyre & Co., Oregon, Ill.**

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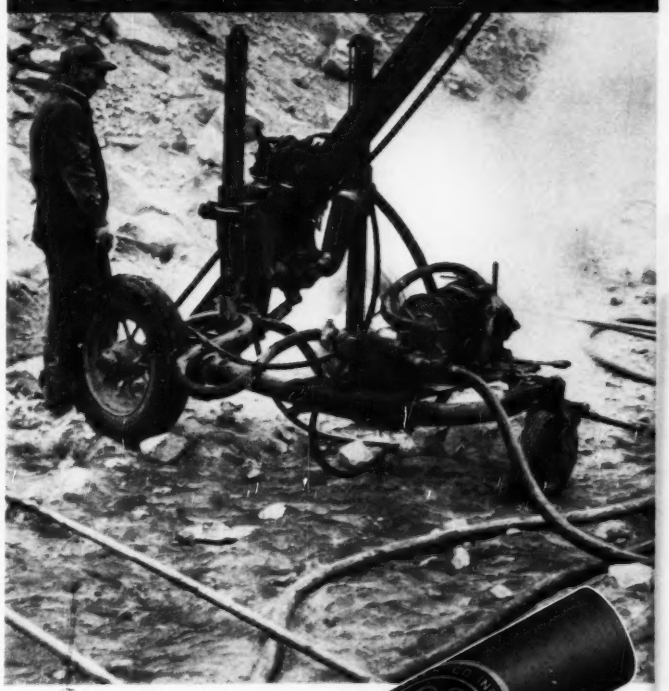

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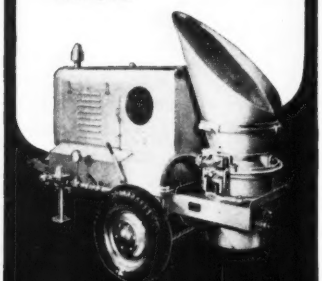
- *PRESERVING* . . . Brick, concrete, steel, tile, stucco, wood, iron, spillways, turbine chambers, piers, sewers, tunnels, etc.



Write for illustrated bulletin No. JG-348 showing JETCRETE in action.

CONSTRUCTION MACHINERY COMPANIES
WATERLOO, IOWA

IRON CEMENT FOR PIPE JOINTS—(6-p. folder) Describes and illustrates three methods of making bell-and-spigot joints with Smooth-On No. 5 iron cement. Tabulates quantity of cement needed for joints in pipe from 2 to 15 in. in diameter.—**Smooth-On Manufacturing Co., 370 Communipaw Ave., Jersey City 4, N.J.**

LETTERING INSTRUMENT—(4-p. folder) Describes Varigraph for producing precision machine lettering from templates designed by leading artists and typographers. Templates are available in 16 popular alphabets. Designed to shorten tedious hours at drawing board.—**Varigraph Co., 2715 Vine St., Lincoln 3, Nebraska.**

CORROSION-RESISTANT PRODUCTS—(24-p. booklet) Describes and illustrates 47 classifications of nickel specialties including nails, bolts, slings and hooks, pipe and pipe fittings, gaskets, valves and wire rope. —**International Nickel Co., Inc., 67 Wall St., New York 5, N. Y.**

LIGHTWEIGHT AGGREGATE—Circular tells about Lelite for use in structural concrete, refractory concrete and precast products. This quality lightweight aggregate is a structurally strong, chemically inert, cellular, vitreous material produced in gradations particularly adapted for use in poured structural concrete and precast structural concrete products where strength, as well as light weight, is important.— **Lehigh Materials Co., Lansford, Pa.**

TESTING EQUIPMENT—A 62-p. catalog covers testing equipment for asphalt, tar, petroleum products, cement, concrete, aggregates and sub-soils. It includes testing sieves, balances and weights.—**Humboldt Mfg. Co., 2014 N. Whipple St., Chicago 47, Ill.**

BUILDING CABLES—A 20-page catalog describes a line of latex insulated building wires and cables. Booklet gives performance characteristics, details of construction and specifications for the full line of armored cables, service entrance cables, non-metallic sheathed cables and new building wire designed specifically for use in wet locations. —**U. S. Rubber Co., Rockefeller Center, New York 20, N. Y.**

PORTABLE HOISTS—(4-p. folder) Lists four models of 2, 4, and 6 hp. weighing from 200 to 500 lb. Hoists are designed for use of roofers, building contractors and plumbers. Contains instructions for operating hoists.—**King Mfg. Corp., 3146 W. Chicago Ave., Chicago 22, Ill.**

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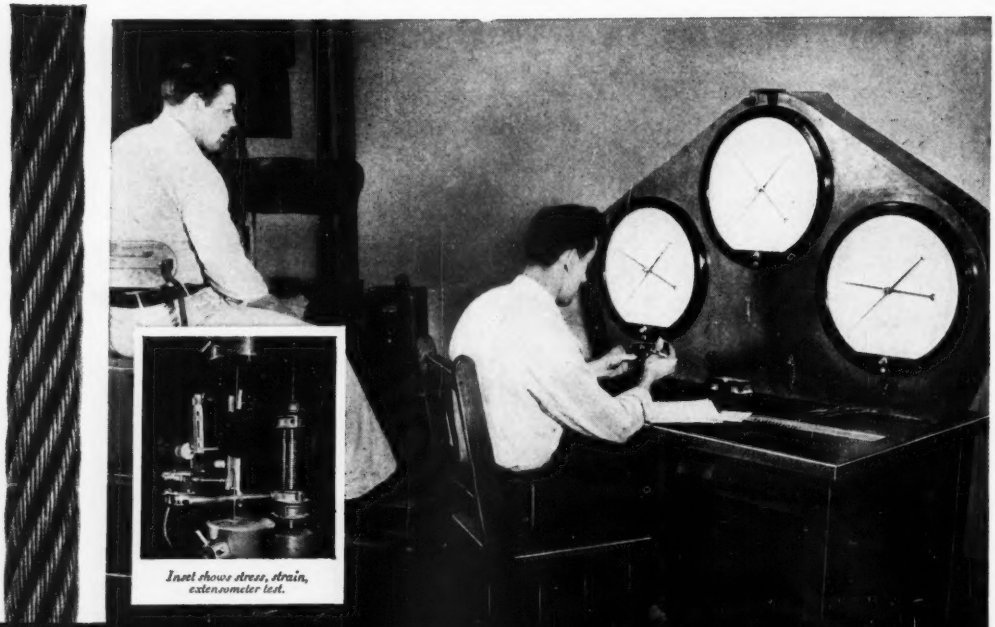

Inset shows stress, strain, extensometer test.

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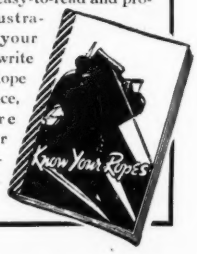

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and Their Companies

Current developments among manufacturers relating to expansion of services, shifts in personnel, and other changes, include the following:

SALES—Charles L. Peyton is sales manager for the Illinois-Wisconsin district of the **Universal Atlas Cement Co.** at Chicago . . . **Robert M. Hays** is sales manager of the trailer axle division of the **Timken-Detroit Axle Co.** . . . **J. C. Barnes** is vice-president for sales, eastern division, the **Rittling Corp.,** Buffalo, N. Y., heating equipment. . . . **Lewis B. Kinney** is sales representative in Colorado for **Babcock & Wilcox Tube Co.,** Beaver Falls, Pa. . . . **D. J. Byrd** is district manager in the southeast region for **Gar Wood Industries, Inc.** of Wayne, Mich. . . . **Lionel Tinfow,** sales engineer, has been added to the staff of the New York branch office of the **Pennsylvania Flexible Metallic Tubing Co.** . . . **Henry F. Munroe** has been added to the sales engineering staff of % **Proportioneers, Inc.** % of Providence, R. I. . . . **R. Fred Moore** is in the sales department of **Goodyear Yellow Pine Co.,** Picayune, Miss. . . . **General Tire & Rubber Co.** has opened a new branch sales outlet at Richmond, Va. . . . **McMillan Robinson** has been appointed sales manager for the metal products division of **Koppers Co., Inc.** . . . **Frank W. Eichman** is sales manager of the Philadelphia plant of **Joseph T. Ryerson & Son, Inc.,** steel distributors . . . **Dale S. Gronsdahl** will serve the sales department of **Caterpillar Tractor Co.** in Alabama, west Florida and central Tennessee . . . **Walter W. Harvey** and **Conrad P. Herman** are the new heads of sales for the **Foster Trailer Co.,** Los Angeles . . . **James J. Flasco** is St. Louis branch sales manager for the **General Tire & Rubber Co.** . . . A meeting of the Southeastern district sales representatives of the **A. B. Farquhar Co.,** of York, Pa. was held recently in Atlanta, Ga. . . . **Ralph O. Wirtemburg** has special assignments from the general sales manager's office of the **New Departure Div., General Motors Corp.; James P. Gillilan** succeeds Mr. Wirtemburg as eastern regional manager; and **C. S. Fleet** fills Mr. Gillilan's former place . . . New sales representatives of **Allis-Chalmers** are **J. I. Onarheim** and **R. T. Ward,** Milwaukee; **Joy Seefeld,** San Antanio, Tex., **W. H. Sanford,** Houston, Tex.; **A. J. Mestier, Jr.,** New York; and **R. E. Bender,** Grand Rapids, Mich. . . . **James A. Anderson** is assistant sales manager of

(Continued on page 138)

Now...tractors pull standing still!

with the **AMERICAN** *single drum*

Tractowinch

The AMERICAN Tractowinch adds an extra "dimension" to tractor usefulness. With 7500 lb. single line pull, (on tractors with sufficient p.t.o. rating) it has plenty of power for towing railroad cars, dragging heavy loads, hoisting, loading and pulling, even in very close quarters. Developed after long study of the special problems involved, it is now a production item—fully perfected, field tested for use on industrial wheel type tractors.

Every feature of deluxe winch construction has been included. The Tractowinch is ball bearing equipped . . . has jaw clutch on drum, to permit free spooling . . . has powerful hand brake . . . fairlead rollers allowing sharp off-lead of cable to either side . . . and has drawbar built into frame for regular towing jobs. Available through your tractor distributor. Or write us direct for prices and literature.

American Hoist
and DERRICK COMPANY

St. Paul 1, Minnesota

Plant No. 2: So. Kearny, N. J.

Sales Offices: NEW YORK • PITTSBURGH • CHICAGO

AMERICAN HOIST AND DERRICK CO. 9125

St. Paul 1, Minnesota

Please send information on the AMERICAN TRACTOWINCH, to fit _____(make) _____(model) tractor.

Name _____

Company _____

Address _____

City _____ Zone _____ State _____ 2

Baughman BELT and BUCKET ELEVATOR

EASILY and QUICKLY ASSEMBLED . . .

Elevates 20 to 80 Ft. High . . . (10 foot multiples)

"Self-supporting" Rigid Alloy Steel Construction

for
QUARRIES
BLOCK PLANTS
BATCHING PLANTS
PRE-MIX PLANTS
COAL YARDS
MATERIAL YARDS
GRAVEL PLANTS
CEMENT PLANTS
FEED MILLS
STORAGE PLANTS

Hi-Speed, Smooth, Quiet-Handling with a **BAUGHMAN HI-SPEED BELT AND BUCKET ELEVATOR!**

Put loose, free-flowing materials aloft easily and speedily . . . cut down costly handling time.

Baughman Hi-Speed Vertical Belt and Bucket Elevator is *ever* ready at the flick of a switch to elevate sand, gravel, crushed rock, limestone, chat, cinders, egg and stoker coal, etc., aloft at better than ton-a-minute speed.

Tailored to meet ANY HEIGHT REQUIREMENT

By coupling standard 10-foot sections together (on your order) we quickly furnish a Baughman Hi-Speed Elevator tailored to your particular requirements. Constructed of rugged, durable high tensile alloy steel . . . 30% lighter . . . 17% stronger . . . 5 times more rust resistant.

UNLOAD CAR AND CHARGE ELEVATOR IN ONE CONTINUOUS OPERATION!

HEAVY DUTY TROUGHED BELT UNDER-TRACK UNLOADER

Primarily designed for large users with semi-permanent trackage set-ups. Extends beyond rails on far side of car; collects material from under entire car width. Synchronized speeds of Car Unloader and Bucket Elevator keep flow smooth and even with no choking or overloading.

Write today **For Prices and Complete Information**

THERE IS A BAUGHMAN DISTRIBUTOR NEAR YOU

BAUGHMAN

Baughman Manufacturing Co., Inc.
110 ARCH STREET • JERSEYVILLE, ILLINOIS

If it's HI-SPEED *. . . it's* BAUGHMAN!

(Continued from page 137)

Babcock & Wilcox Tube Co., and **Wm. H. Buley** is manager of stainless sales.

DISTRIBUTORS—E. A. Altshuler, 1605 Cahuenga Blvd., Los Angeles, will set up distributors in the West for **Prest-Glass Corp.,** New York . . . **Wilhelm-Davis Co., Inc.,** Wallingford, Conn., has been appointed distributor in Connecticut for **Barber-Greene Co.** . . . **Thurston Cooke Equipment Co.,** Louisville, Ky., is a Class A dealer for **Davey Compressor Co.,** Kent, Ohio. . . . **Miller, Bradford & Risberg Co., Inc,** Eau Claire, Wis., are distributors for **R. G. Le Tourneau, Inc.,** for Wisconsin, except for the 11 Northwestern counties . . . **John C. Riley, Jr.,** 407 Scanlon Bldg., Houston, Tex, is district representative for **Midvale Co.,** Philadelphia; the **Reading Chain & Block Corp.,** Reading, Pa., **Diamond Saw Works,** Buffalo, N. Y.; **Arrow Products,** Grand Rapids, Mich.; the **Phosphor Bronze Corp.,** Philadelphia; **Electric Steel Foundry Co.,** Houston, Tex. and Portland, Ore.; and **Hasco Valve and Machine Co.,** Milwaukee, Wis. : . . Within a period of six months **M. R. Hamill,** distributor for **Huber Mfg. Co.** at Charleston, W. Va., sold 55 Huber road maintainers to the West Virginia State Road Commission.

Wilkinson & McClean, Ltd., Calgary, Edmonton and Lethbridge, Alta., have been appointed distributors for Bucyrus-Erie blast hole drills and bit dressers. . . . The following have been made distributors by the **Concrete Transport Mixer Co.: W. W. Williams Co.,** Columbus, Ohio, for Ohio and Kenton, Campbell and Boone Counties, Ky.; **Capital Equipment Co.,** Harrisburg, Pa., for several counties in middle eastern Pennsylvania; and the **F. S. Ray Co.,** Houston, Tex., for 35 counties in southeastern Texas.

PERSONALITIES—W. E. Toensing is district manager for **Gar Wood Industries, Inc.,** in Virginia, N. C., S. C. and the D. C. . . . **A. W. Wagner** is general parts division manager for **The Thew Shovel Co.** . . . **R. S. Rankin,** assistant manager of North American sales for **The Dorr Co.,** in charge of sanitary engineering work is in Europe for three months inspecting sewage and water treatment plants and conferring with his company's associates in London, Amsterdam, Brussels, Paris and Milan . . . **Thomas J. Tingle** is western division manager in charge of manufacturing for **Taylor Forge & Pipe Works,** Chicago, at the New Fontana, Calif., plant . . . **David S. Day,** sales manager, Duluth, Minn., has retired after 41 years of continuous service with **Universal Atlas Cement Co.** . . . **Joseph M. Tucker,** formerly executive vice-president

(Continued on page 140)

Kennametal Rock Bits
Save Time, Cut Costs
DO THE JOB FASTER

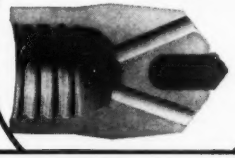
FEW BITS— FEW CHANGES

Kennametal Rock Bits have resistance to gage reduction 100 times greater than steel. Same size bit can be used on all drill rods. A full day's work frequently is done by the same bits on their respective drill rods.

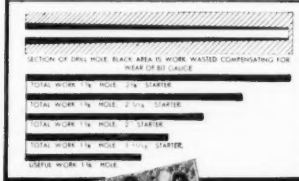
DRILL FAR LONGER THAN STEEL BITS

In Cambria County, Pa., 1 Kennametal rock bit outlasted 188 steel bits, and saved about $40.00 in bit cost alone. Drilling time for the footage was reduced from 1210 minutes to 308 minutes.

THIS IS THE DESIGN— COMPLETELY PROVED



Proof of Superiority of Single Gage Drilling with KENNAMETAL ROCK BITS



The 2 Kennametal Rock Bits shown at right drilled as long on this job as 600 steel bits. Each bit drilled 1,500 feet, total of 3,000 feet, in black flint, shale, and sandstone!

Kennametal Rock Bits have a cutting edge of solid Kennametal that keeps gage loss to within thousandths of an inch. Its resistance to wear enables the bit to drill up to 4 times as fast, and drill smooth, uniform diameter holes in sandstone, granites, ganister, quartzite, limestones and other medium and hard materials.

Users of Kennametal Rock Bits report lower bit cost, better blasting effectiveness, far fewer bits used per foot drilled. Kennametal Bits can be used on sinkers, drifters, stopers, and wagon drills, without any conversion of equipment. They screw on standard drill rods.

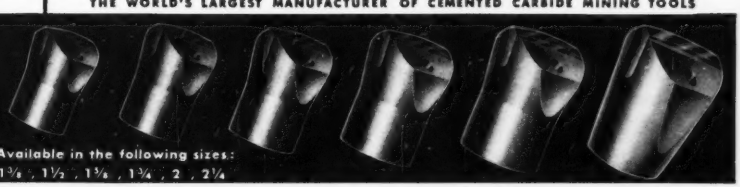
For complete particulars on how Kennametal Rock Bits can reduce your drilling costs, ask for Bulletin RB-1. Write to Mining Division, Kennametal, Inc., Latrobe, Pa.

MINING DIVISION

KENNAMETAL Inc.

Latrobe, Pa., U. S. A.

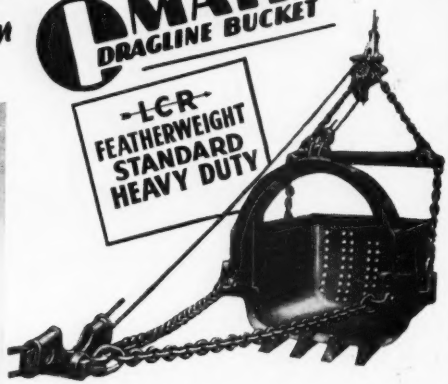
THE WORLD'S LARGEST MANUFACTURER OF CEMENTED CARBIDE MINING TOOLS



Available in the following sizes:
1⅜ , 1½ , 1⅝ , 1¾ , 2 , 2¼

Of Course it's an OMAHA DRAGLINE BUCKET

~~LCR~~ FEATHERWEIGHT STANDARD HEAVY DUTY



Year after year OMAHA Dragline Buckets have proven themselves moneymakers and time savers. Every extra pound of weight has been removed to mean extra profits in every load.

Omaha Dragline Buckets, the original lightweight buckets, have been earning this extra profit for many contractors through many years.

Write for a free catalog.

DRAKE-WILLIAMS-MOUNT • OMAHA, NEBR.

More Dirt Moves Faster When **OWEN BUCKETS** *swing over dump trucks*

This claim is strongly substantiated by the increasing numbers of excavating contractors who have standardized on Owen Buckets to "Insure a Bigger Day's Work".

Long popular, Owen design and construction characteristics make for consistent "ease of operation" with "A Mouthful at Every Bite" and a clean and rapid discharge.

THE OWEN BUCKET CO. 6020 Breakwater Ave., Cleveland, O.

BRANCHES: PHILADELPHIA • CHICAGO • BERKELEY, CALIF.

"He's filling No. 27 again—Let's go. This is where we came in."

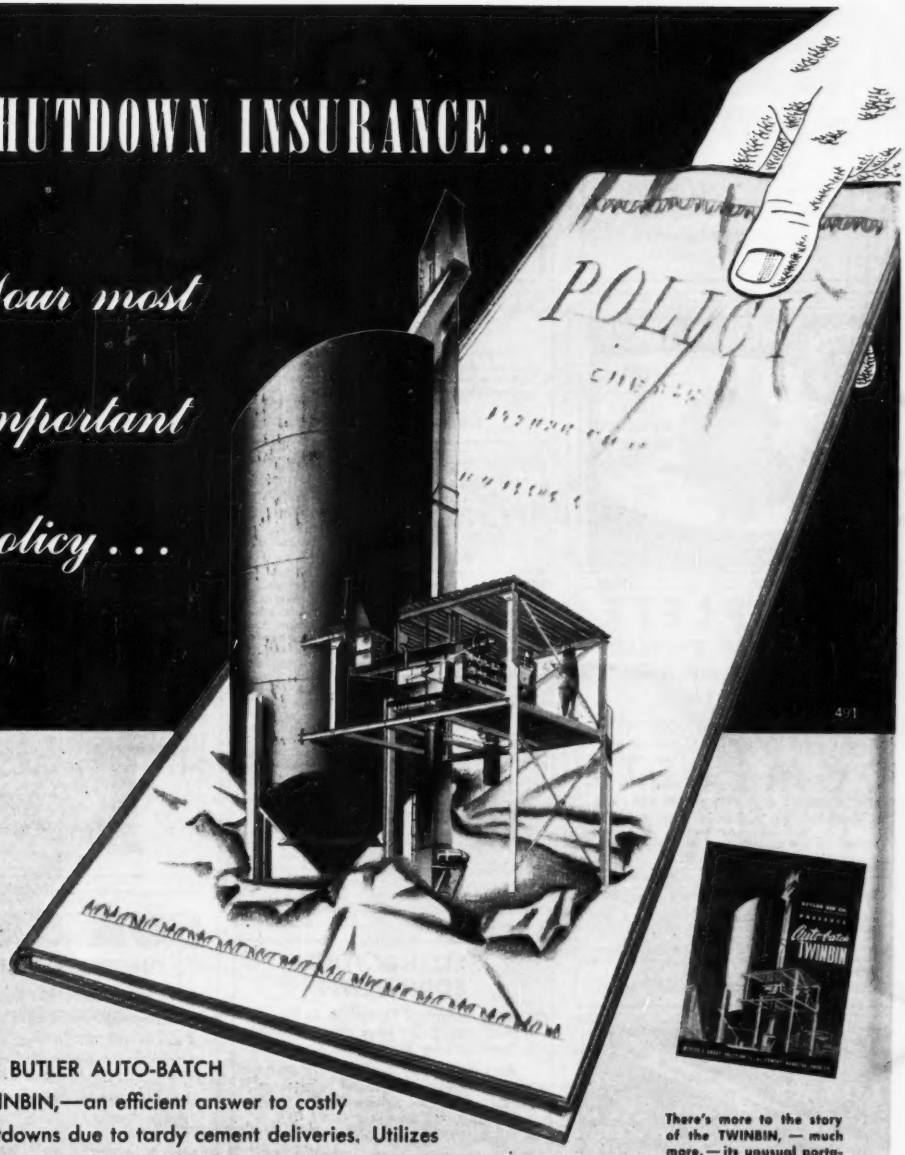
(Continued from page 138)

of the **Marsey-Harris Co.**, Racine, Wis., will become executive vice-president of the **Lustron Corp.** . . . **George Carlson** is manager of manufacturing for the conduit products division, **General Electric Co.'s** construction materials department; **Robert L. Wakelee** is materials manager of that division, and **G. H. Howes** is supervisor of general accounting . . . **Daniel J. Boone** is manager of the general merchandising division of the **Zonolite Co.**, Chicago . . . **W. E. Madden** is vice-president of the **George Haiss Mfg. Co. Inc.**, New York City . . . **Robert E. Bounds** is staff engineer with the insulations division of **The Paraffine Companies, Inc.**, San Francisco . . . **Roy E. Smith** is president of **Stefco Steel Co., Inc.**, Michigan City, Ind.

MISCELLANY—Thomas Crimmins Contracting Co., New York, recently celebrated the 100th anniversary of its founding . . . **Bingham-Herbrand Corp.** has opened one new divisional office at 551 Fifth Ave., New York City and another at 2500 West 6th St., Los Angeles . . . **Timber Structures, Inc.**, has formed **Timber Structures, Inc., of California** at Oakland to serve northern California and Nevada with highway bridges, roof trusses, glued laminated arches, building frames and package buildings, and miscellaneous fabricated items. **Frank Benson** is the manager and **MacGregor Graham** the sales manager. **T. C. Combs**, the former manager, will become vice-president in charge of sales at the Portland, Ore., office. **C. H. Anderson** has been appointed chief engineer, and **J. A. Finelli** is production manager . . . **The Preload Corp.** has removed its office to 211 E. 37th St., New York, 16, N. Y. . . . **Airquipment Co.** has bought **Aeroil Co. Inc.**, which will continue as a subsidiary . . . **Eppinger and Russell Co.** wood preservers, 80 Eighth Ave., New York City, have acquired the wood preserving plant of the **Keystone Wood Preserving Co.**, of Eddington, Pa. . .

SHUTDOWN INSURANCE...

Your most important policy...



The BUTLER AUTO-BATCH TWINBIN,—an efficient answer to costly shutdowns due to tardy cement deliveries. Utilizes the space for emergency cement reserve which conventional design wastes for batcher and truck access. The principle: A two chamber bin. The upper chamber feeds to dual batcher on a platform pinned to the side. Reserve cement held in lower chamber is brought "upstairs" by elevator when needed. Capacity: 520 barrels. Production: 2 batches every 65 seconds. Result: Continuous operation even when there are delays in spotting that hopper-bottom car.

There's more to the story of the TWINBIN, — much more, — its unusual portability for example. Complete details are yours for the asking. Just write today for the BUTLER TWINBIN Bulletin.

BUTLER BIN CO.

WAUKESHA, WISCONSIN

WHERE TO BUY

Featuring Additional Products, Specialties & Services for the Construction Industry

STERLING PUMPS

STERLING QUALITY

CHOICE OF LEADING CONTRACTORS EVERYWHERE

SIMPLE DEPENDABLE RUGGED

WRITE NOW

STERLING MACHINERY CORPORATION
405 Southwest Blvd., Kansas City, Mo.

COMPLETE
WELL POINT SYSTEMS
WILL DRY UP ANY EXCAVATION
Faster—More Economically
Write For Job Estimate and 32 page Catalog
COMPLETE
MACHINERY & EQUIPMENT CO., Inc.
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Waterproof with Formula No. 640

A clear liquid which penetrates 1" or more into concrete, brick, stucco, etc., seals—holds 1250 lbs. per sq. ft. hydrostatic pressure. Cuts costs: applies quickly—no mixing—no cleanup—no furring—no membranes. Write for technical data—free sample.

HAYNES PRODUCTS CO., OMAHA 3, NEBR.

ATLAS CONCRETE FORMS
Walls • Cylinders • Floors • Sewers
Irvington FORM & TANK CORP.
Irvington, N.Y.

This
WHERE TO BUY
Section

supplements other advertising in this issue with these additional announcements of products and services essential to official and economical operation in the construction industry.

SEARCHLIGHT SECTION

(Classified Advertising)

EMPLOYMENT: BUSINESS: "OPPORTUNITIES" :EQUIPMENT :(Used or Resale)

UNDISPLAYED —RATES— DISPLAYED

$1.20 per line, minimum 4 lines. To figure advance payment count 5 average words as a line.
Positions Wanted (full or part time salaried employment, only) ½ the above rates payable in advance.
Box Numbers—Care of publication New York, Chicago or San Francisco offices count as one line.
Discount of 10% if full payment is made in advance for 4 consecutive insertions.

Individual Spaces with border rules for prominent display of advertisements.

The advertising rate is $9.50 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

An advertising inch is measured ⅞" vertically on one column, 3 columns—30 inches—to a page.
C.M.

MECHANICAL ENGINEERS

Graduate Engineers wanted with construction experience. Have openings for several men as Maintenance Supervisors with large construction firm, working in Central and Western States. Salary according to qualifications. Advancement limited only by your abilities.

Write P-7417, CONSTRUCTION METHODS,
330 West 42nd Street, New York 18, New York for complete story.

REPLIES (Box No.):
Address to office nearest you.
NEW YORK: 330 W. 42nd St. (18)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITION VACANT

WE HAVE an opening for a top flight bituminous concrete superintendent with general experience in all types of asphalt and cement concrete paving. Position will be permanent, at good salary, with future in growing company. Operations are generally in Kentucky, but not limited thereto. Home office is in small town in Bluegrass Section. Prefer man with family, willing to settle in town where home office is located. However, this is not mandatory. Send full particulars regarding experience, and pertinent personal information. Also furnish names and addresses of present and past employers. Any applicant considered favorably will be contacted and arrangements made for interview. P-7422, Construction Methods.

POSITION VACANT

MASTER MECHANIC Foreman for year round work in Hawaii. Between 40 and 50. Must have thorough knowledge of all types construction equipment. Only those desiring steady job need apply. Write stating salary desired. Address P-7514, Construction Methods.

SELLING YOUR EQUIPMENT?

To be certain of top prices, to be certain all contractors know your equipment is for sale, have an auction!

Have an auction conducted by competent, reliable, experienced auctioneers. Complete auction service for 28 years. Sales conducted anywhere in the U.S.

Call or write
FORKE BROS., & FICKE
THE AUCTIONEERS,
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PROFESSIONAL SERVICES

LANCASTER, ALLWINE & ROMMEL
Registered Patent Attorneys

Patent Practice before U.S. Patent Office. Validity and Infringement Investigations and Opinions. Booklet and form "Evidence of Conception" forwarded upon request.

Suite 417, 815-15th St., N.W., Washington 5, D.C.

FULL VIEW . . . JOB AHEAD WITH SITTING COMFORT

Living room comfort in a chair designed for Power Shovels, Cranes, Tractors, Graders, etc.

All metal . . . can be raised from 19" to 28" by hand lever. Seat moves forward or backward. Chair bolts down tight. Built for government . . . stands hard service.

Now selling at ..... $15 far below the price of production.

WEIL'S
20 South 2nd St.
Phila. 6, Pa.

FOR SALE

IMMEDIATE DELIVERY

NEW PLAIN HOT ROLLED, ANNEALED MILD STEEL SHEETS

• Approx. 200 TONS—12 ga. x 36" x 96"

NEW HOT ROLLED MILD STEEL PLATES

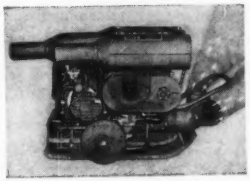
• Approx. 340 TONS—3/16" x 5' x 15' & 20'

CARBON = .12 max.

FABRIKANT
STEEL PRODUCTS, Inc.
50th Floor — Woolworth Bldg.
NEW YORK 7, N. Y. • BEekman 3-3041
CABLE ADDRESS: FABKANT, New York
MEMBER Association of Steel Distributors

If there is anything you want that other readers can supply
OR . . . *something you don't want*— that other readers can use—
Advertise it in the
SEARCHLIGHT SECTION

PORTABLE HEATER SALE



STEWART-WARNER portable powerful 100,000 BTU gasoline-burning heaters complete with turbine type blower, flexible ducts and 1½ HP. air-cooled ball-bearing engine. Excellent operating condition guaranteed.

PORTABLE SELF-POWERED MANY PURPOSE HEATER

HEATING buildings, shops, sheds, warehouses, manholes, tunnels, buildings under construction, spot-heating, etc.

PRE-HEATING engines, tractors, trucks, equipment, etc.

THAWING frozen areas, machinery, pipe lines, tanks, etc.

DRYING plaster, paint, mortar, concrete, etc.

Original Cost $583.00

SALE PRICE $195.00

SEND FOR LITERATURE

BERNSTEIN BROTHERS

SINCE 1890

PUEBLO, COLORADO

HOSE SALE

BRAND NEW 4-INCH DISCHARGE HOSE

Brand new Goodrich 4-inch Discharge Hose (or Fire Hose). 200-lbs. pressure, rubber-lined, complete with male and female bronze couplings, in 50-ft. lengths—only 60¢ per ft. (or $30.00 per 50-ft. length complete with fittings).

USES: Portable Pipe Lines; Fire Hose, Handling Water, Liquids, etc.; Sewer & Trench Work; Manholes; Discharge on Pumps; Mines; etc.

SALE PRICE.....per ft. 60¢

50-ft. length complete with fittings **$30.00**

BERNSTEIN BROTHERS

Since 1890

Pueblo, Colorado Phone 8404

LONG RANGE

...Concrete Operations are easy

Not a CENT for capital investment

just RENT for truck equipment

CONSERCO

CONCRETE TRUCK MIXER RENTAL SERVICE

Increasing your AREA OF OPERATION is an important factor in developing the full potential of your "ready-mixed concrete" business.

Here's where the CONSERCO System comes in mighty handy, because it provides extra concrete-hauling units for reaching your market limits—at no capital expenditure.

We offer monthly leases on 3, 4 and 4½ cubic yard high discharge transit mixers mounted on tandem drive trucks, in perfect working condition. You have complete control of these truck mixers during the contract period.

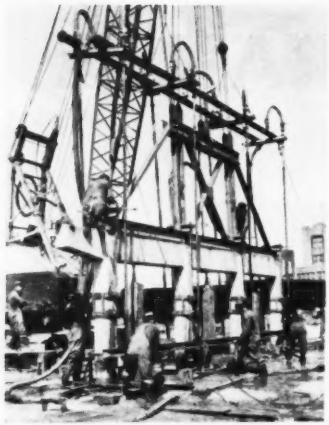
Remember: All rentals are deductible from income taxes.

Write for full details, including prices.

CONSERCO CO.

River Road & B&O RR Washington 16, D. C.

Phone: OLiver 2011



For High or Low Pressure Steam, Air, Water and Hydraulic Hose...

"BOSS"
MALE COUPLING
STYLE MX-16

Companion to "GJ-Boss" and "Boss" Female Couplings, and a leader in the DIXON Quality Line. Built to provide unequalled strength, durability and safety in the most severe service. Corrugated stem has strong hex section for wrench and collar to engage extensions on clamp. Clamp is "Boss" Offset and Interlocking style, assuring a powerful, full-circumference grip on the hose. Sizes 1/4" to 6", with each size fitting same size straight end hose. Cadmium plated —rustproof.

Stocked by Manufacturers and Jobbers of Mechanical Rubber Goods.

IF IT'S A DIXON PRODUCT

IT'S DEPENDABLE

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VALVE & COUPLING CO.
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BRANCHES: CHICAGO · BIRMINGHAM · LOS ANGELES · HOUSTON

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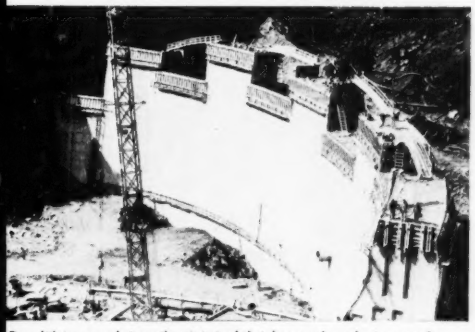
"ARMSTRONG Bros." Chain Tongs come in "Standard" "Reversible jaw" and "Ideal" (V-jaw) types—in sizes for every need. Their drop-forged jaws have milled teeth, are hardened, tempered and tested for wearing qualities. They have heavy forged-in lugs that give extra bearing on the handles to which they are rigidly held by a large hardened steel bolt. The handles are forged and heat treated to the correct balance of stiffness and spring. Shackles are drop forged and chains proof-tested to 2/3 catalog strength (3,600 lbs. to 40,000 lbs.)

Write for Chain Tongs Circular

ARMSTRONG BROS. TOOL CO.
5234 W. Armstrong Ave., Chicago 30, U.S.A.

Eastern Whse. and Sales: 199 Lafayette St., New York 12, N. Y.
Pacific Whse. and Sales Office: 1275 Mission St., San Francisco 3, Calif.

Pozzolith gave pumped concrete increased workability, easy placeability, good cohesiveness. Milwaukee Sewage Disposal Plant.



Pozzolith increased strength, minimized shrinkage and cracks, increased pour 200 cu. yds. per day. Matilija Dam, Ojai, Calif.

Serious segregation overcome, time and money saved — with Pozzolith. The Aluminum Co. of Canada, Ltd., Arvida, Quebec.

Pozzolith produced good appearance, watertightness, durability in this New Brunswick, N. J. Sewage Treatment Plant, now 10 years old.

CONCRETE CHECK CHART

Following are qualities sought in concrete work. Pozzolith, the concrete man's most useful tool, is widely used to improve these qualities.

Three of these — Minimum Shrinkage, Maximum Strength, Maximum Economy — are available **only with Pozzolith . . .** because only Pozzolith's cement dispersion puts all of the cement to work, cuts water-cement ratio 15%.

- ☐ Good Plasticity
- ☐ Easy Placeability
- ☐ Pumpability
- ☐ Good Cohesiveness
- ☐ Minimum Bleeding and Segregation
- ☐ **Minimum Shrinkage and Cracks**
- ☐ Speed in Stripping Forms
- ☐ Minimum Finishing
- ☐ Density
- ☐ **Maximum Strength**
- ☐ Good Appearance
- ☐ Watertightness
- ☐ Great Durability
- ☐ **Maximum Economy**

ONLY WITH POZZOLITH ARE MINIMUM SHRINKAGE MAXIMUM STRENGTH and MAXIMUM ECONOMY ASSURED

along with these other qualities, because Pozzolith complies with the water-cement ratio law and puts all the cement to work.

Authoritative method for concrete design is American Concrete Institute's "Recommended Practice for the Design of Concrete Mixes" — ACI (613-44) . . . based on the water-cement ratio law. Pozzolith used with this procedure produces the best, most economical results.

Write for bulletins giving this method . . . also new Pozzolith booklet.

the MASTER BUILDERS Co.

CLEVELAND 3, OHIO — TORONTO, ONTARIO

"WE'VE STANDARDIZED ON BLUE BRUTES"

Millard Buzby Epley, Treasurer of Buzby Brothers, Westville, N. J.

Buzby Brothers profit-boosting fleet of Ransome Blue Brute Hi-Up Truck Mixers at their batching plant in Westville, N.J. The three 3-yd. Mixers at left, bought in 1946, proved so satisfactory that the other five Hi-Ups were added—two in 1947 and three in 1948.

Here's how Ransome Blue Brute Hi-Up Truck Mixers rate with men who use them constantly. Millard Epley, Treasurer of Buzby Brothers, writes:

"All our Hi-Ups have had an absolute minimum of down time. Non-availability has never cost us a penny.

"Every Mixer must be on call for any size and type of job, at any hour. Ransome's quick charging action at the plant, thorough mixing en route and fast discharging at the job allow us to average nearly 200 yds. a day on six-or seven-mile hauls.

"I believe Ransome's better mixing action makes stronger concrete — I know all our customers are satisfied.

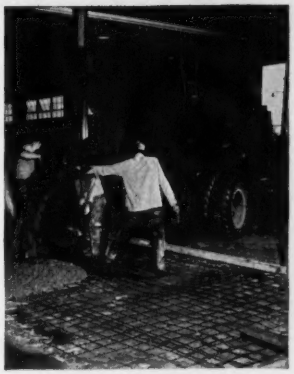
"Due to Ransome's A-1 service and the excellent operation of our Hi-Up Mixers, we have found it profitable to standardize entirely on Blue Brutes."

Get around among Hi-Up users and you'll find this is a familiar story, with smooth-running, efficient Blue Brute Truck Mixers saving time and money on every job. Write for Bulletin 221, or see your nearby Worthington-Ransome Distributor for full proof that *there's more worth in Worthington.*

RB-3

WORTHINGTON

WORTHINGTON PUMP AND MACHINERY CORPORATION
Worthington-Ransome Construction Equipment Division, Holyoke, Mass.
Distributors in all principal cities



Fast action! One of Buzby Brothers' 3-yd. Hi-Ups, pouring concrete flooring for a new warehouse at Gibbsboro, N.J. This job, 10 miles from the batching plant and totalling 51,000 sq. ft. was completed in 13 days.

BUY BLUE BRUTES

IF IT'S A CONSTRUCTION JOB, IT'S A BLUE BRUTE JOB